# Physical education, physical activity and the National Curriculum Physical Education: Policy, provision and prospects.

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## Abstract

There have been recent calls from government, health agencies and other organisations for schools and physical education lessons to address the 'coach potato kid epidemic' that is reportedly emerging in the United Kingdom. But in what ways, and to what extent, does, should, and could physical education contribute to encouraging lifelong, health-enhancing physical activity participation amongst young people? There are continued claims that physical education is an effective forum for the promotion of physical activity and health whilst also claiming to address matters of sport and performance. Yet, 'health' is only one of several interests in and of the subject. Whether or not these claims are justified, and indeed whether interests in health and physical activity can be promoted to a position of prominence within the established focus and framework of physical education were central challenges that the research presented in this thesis engaged with. Through a multi-disciplinary approach this study pursued the expression of particular discourses in physical education and the scope for 'slippage' inherent in 'official texts', and specifically the National Curriculum for Physical Education in England. In particular, the research pursued the integration and compatibility of active experiences with interests of sport and performance in teaching and learning in games. The research openly highlighted processes of negotiation, resistance, and struggle for teachers and pupils in their ongoing 're'construction of the curriculum. Where and how health and physical activity were ultimately positioned in relation to 'other learning' in physical education was complex and not necessarily easy for either teachers or pupils to accomplish or accept. This study has highlighted that physical education continues to play an important role in educating current and future citizens about the benefits of participating in physical activity, yet arguably, the profession still has some way to go before this becomes a positive reality in and for teaching and learning, policy and practice in the subject.

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# Chapter 1: Introduction

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> It's such a basic thing. You get kids, we're doing cross-country in year 9, and there's this girl practically crying, and she goes, 'I can't breathe, I can't breathe', and I'm like 'Have you got asthma?' 'No'. 'Have you got a chest infection, are you ill?' 'No'. 'You are *running*, that's all it is, you are out of breath because you are running hard'. You know, and she doesn't realise it, she's 13 years old, you know a little bit plump, she's never been out of breath before. To me that's just incredible.
>
> Kate, Secondary physical education teacher.

The passage presented above expresses a common frustration for physical education teachers; how can they encourage young people to take part in physical activity, recognise its potential value in their lives, and embed it in their lifestyles? But should this be a concern? What is, and what could or should be the role of physical education in helping young people understand the benefits of physical activity, and/or take part in physical activity that will achieve these benefits? What importance is placed upon these issues in physical education, and *what scope* exists for physical education to *seriously* pursue interests of physical activity and health? These issues are at the forefront of the research presented in this thesis, that addressed the ways in which interests in physical activity and health have, and in the future may, feature in the policies and practices of the National Curriculum for Physical Education (NCPE) in England.

In recent years, the association between physical education and children's physical, psychological and social 'health' has been consistently debated and contested in physical education communities. Of particular concern has been the *direct* contribution made to children's current and future health by the fact that physical education provides 'active' experiences for pupils. In addition, attention has been directed towards the *indirect* contribution made to children's current and future health through the role that physical education can play in developing their awareness, knowledge, skills and understanding in relation to the benefits of and need for physically active lives. The physical education profession (represented by the British Association of Advisors and Lecturers in Physical Education; BAALPE, and the Physical Education Association of the United Kingdom; PEAUK), central government 'official texts' (for example, the NCPE; Department for Education and Science and

the Welsh Office (DES/WO), 1992, Department for Education and the Welsh Office (DFE/WO) 1995, Department for Education and Employment (DfEE) / Qualifications and Curriculum Authority (QCA), 1999, Department of Health (DoH); National Healthy School Standard, 2001), and other organisations (Health Education Authority[1], Sport England, British Heart Foundation) have all emphasised the importance of schools and more specifically, physical education, in providing positive physical activity experiences and educating children about the benefits of participation in meaningful physical activity. There is an expectation that, through providing active experiences for children, physical education lessons should seek to make a contribution towards the realisation of national recommendations relating to physical activity levels for young people, such as those incorporated in the Health Education Authority (1998) 'Young and Active' policy initiative (See Chapter 4). These expectations demand that physical educators foreground issues of health and physical activity in their curriculum planning and teaching, rather than rely upon the taken-for-granted assumption that development of pupils' knowledge and understanding of physical activity and health, and their ability and desire to pursue active lifestyles, will happen as an automatic consequence of participation in physical education. Arguably, many of the claims about the importance and contribution of physical education to children's development imply such outcomes. For example, the latest version of the NCPE states that physical education 'promotes positive attitudes towards active and healthy lifestyles' and through the process of planning, performing and evaluating pupils discover how to 'make choices about how to get involved in lifelong physical activity' DfEE/QCA, 1999, p.15). However, such statements also highlight that making contributions directly and/or indirectly to children's health and/or fulfilment of physical activity recommendations are not the only, nor necessarily the most important, aims of physical education, nor more specifically of the NCPE in England. Inherent within physical education, policies and curricula development in schools are multiple aims and agendas, with interests other than those associated with health often dominant. Nevertheless, interests in physical activity have remained at the forefront of debates about the place of physical education in the curriculum and in particular what time it should be accorded. Time, and the time that children are active, have consistently been the focus of attention in debates within physical education. Recent changes in educational policy have led to marked reductions in the time available for

[1] Now renamed the Health Development Agency

physical education. Arguably, 'these changes represent not only a reduction in the time available for young people to actually experience physical activity but, more importantly, represent a reduction in opportunities for promoting a healthy lifestyle and equipping young people with the necessary knowledge and skills for them to become independently active' (Welsman and Armstrong, 2000, p. 149).

Although school based physical education lessons have been identified as making *some* contribution to target physical activity levels there is concern within the profession that physical education often fails to maximise its potential to promote and facilitate appropriate physical activity patterns and to foster lifelong health habits amongst the majority of young people (see Chapter 4). This situation can be associated with ongoing tensions in relation to what knowledge, skills and understanding should be the major focus of attention in physical education, and specifically, the degree to which health-related issues should be a focus of teachers' and indeed pupils' attention. If physical education lessons are to contribute towards the fulfilment of physical activity goals for young people, and provide them with the skills, knowledge and understanding to remain active in later life there is the need for physical education teachers to use curriculum time wisely. Yet, as the earlier comments indicate, what constitutes the 'most effective' or 'wise' use of curriculum time in physical education remains a much debated and contested issue, dependant upon particular visions of and for the subject, and the priorities established amidst the multiple expectations of it. Different people (teachers, policy makers, politicians) have different, and frequently contrasting and competing, interests at the forefront of their agendas that are set to continue to impact upon teaching and learning in physical education. Neither the physical education profession, nor recent governments in the United Kingdom (UK) have seriously engaged with these issues. As others have recognised, (Armour and Jones, 1998; Penney and Chandler, 2000) the profession continues to claim that it does, and can, address many agendas and the government has embedded many in its policy development (most notably, the introduction of a NCPE in England and Wales). Teachers remain in a situation of being charged and expected to 'deliver' on multiple agendas and would be highly justified in claiming to be set an impossible myriad of expectations to address. Guidance as to the ways in which physical education curricula and physical education lessons may be designed so as to address and combine multiple agendas remains scarce. Furthermore, as

specifically. With this model, various activities (or sports) constitute both the key components of physical education and the means by which the many objectives of physical education will be pursued. Activities, the development of competence in them, and striving towards elite performance in sport are the key reference points for teaching and learning in physical education, and for thinking about what physically education is fundamentally 'about'(see also Chapter 2).

In this context, the role that physical education may play in contributing towards health issues remains largely a matter of unfulfilled potential in physical education teaching. As we see in Chapter 2, many teachers remain unclear about the ways in which and the extent to which teaching in physical education in the context of curricula requirements can legitimately focus on health issues. Many others may be paying little more than lip service to health and physical activity amidst an overriding focus upon sport, performance and the development of children's abilities in terms of very specific skills, strategies and competencies that are seen to underpin performance in particular sport settings. Undoubtedly, physical education teachers face dilemmas and tensions in their planning and teaching associated with the challenge of attempting to embrace and facilitate the realisation of arguably diverse learning outcomes in a curriculum for physical education that contains multiple aims and agendas. The situation demands that teachers make choices about what will be included or excluded in the curriculum, what will be deemed a priority or in contrast, a matter of lesser concern. These choices have inevitable and important implications for what learning will furthered in, and via, physical education and the degree to which it will succeed in meeting the diverse educational needs and interests of all pupils. Arguably, the key challenge for teachers and the wider profession is to more actively pursue the *compatibility* of what are invariably portrayed as *competing* agendas, and then to address ways in which the respective interests can be successfully integrated in the curriculum, teaching and learning in physical education. It is these challenges that my research sought to address. It was therefore specifically concerned to explore the nature of the contribution that physical education currently makes, potentially can, and indeed should endeavour to make towards young peoples' current and future physical activity levels, and to advance understandings of the ways in which agendas relating to physical activity and health and to sport performance can be effectively combined in physical education teaching. Within the framework of the NCPE in England (how)

others have argued, the dominant tendencies are for health-related issues to be accorded marginal status in the planning and teaching of physical education curricula and lessons that privilege interests and discourses relating to sport-specific skill development and performance (Harris, 1997a; Penney and Evans, 1997). The compatibility of these interests associated with performance in sport, and those relating to participation in physical activity with a view on health, and the potential for physical education to successfully address both sets of interests has yet to be fully explored. This is true of physical education generally in the UK but also internationally (Corbin, 2002), yet remains a point that is particularly pertinent in relation to ongoing implementation of the NCPE.

The initial development and subsequent revisions of the NCPE have failed to clarify or advance debates about the key purposes of physical education, arguably they have left these issues 'hanging in the balance' by establishing requirements in which the position and representation of health and physical activity in physical education remain vague, and located alongside (and many would argue, subordinate to) other interests. The current situation in schools in England is one in which there remains both a lack of guidance about, and very varied practice, in relation to the pursuit of health and physical activity interests in physical education. In particular, Harris (1995, 1997a, 1997b, 1998a, 1998b) has highlighted that the introduction of a statutory set of requirements for physical education curricula in England has not produced any consistency, nor necessarily desirable improvements, in the ways in which physical education teachers are engaging with these issues. The situation remains one in which there is arguably unfulfilled scope for teaching and learning in physical education to afford greater priority to these issues. Doing so necessarily demands explorations of their compatibility with and potential (re) positioning within curricula that also retains a focus on matters of competency and performance in particular activities.

The continued dominance of interests associated with sporting excellence has repeatedly been prioritised in government policies that have emphasised the role of physical education for future involvement and achievement in sport (Sport: Raising the Game, Department of National Heritage (DoNH), 1995; A Sporting Future for All, Department for Culture Media and Sport (DCMS), 2000) and are reflected in the retention of an 'area of activity' framework for physical education and the NCPE

can teachers succeed in bringing together these multiple agendas, and meeting the diverse expectations of government, but also parents and pupils, in terms of the values and purposes of physical education? This research has provided some insights into these issues, but also pointed to the need for more research and professional development work to be undertaken with this focus.

It is crucial to return to the matter of making choices in relation to those values and purposes and acknowledge the lack of neutrality of any selections. Inevitably and unavoidably teachers will give precedence to particular interests and values over and above others. But equally, research and researchers need to be seen in a similar light. I embarked on this research with an agenda, and specifically, with the belief that encouraging young people to value and understand exercise and feel competent, confident and comfortable within an exercise context is one of the most important agendas for physical education to address. Generating understanding of levels of physical activity in physical education and developing pupils' awareness of the physical activity level that they are exercising at, and improved abilities to monitor this level in activity settings, are all key issues in relation to concerns that physical education will provide a foundation for and a prompt towards pursuing healthy and active lifestyles. Furthermore, they are issues that are important considerations in relation to improving performance in sport settings. Arguably, this latter point provides a point of connection between contrasting visions for the subject. Whilst this research pursues the ways in which discourses of health and physical activity specifically can find greater expression in the curriculum, teaching and learning in physical education, and explores the possibilities inherent in the NCPE to thereby challenge the prevailing and privileged discourses in and of physical education, it does so from a perspective that seeks compatibility in different discourses.

The research was clearly located in a context of both possibilities and constraint, and sought to explicitly explore, rather than deny, both of these characteristics central to contemporary physical education in England. Most notably, the recently revised curriculum orders for physical education could be seen to simultaneously continue to marginalize, but also, raise the status and profile of health discourses in physical education. While clearly supporting the retention of a curriculum framework for physical education focussing upon various areas of activity, the new NCPE also

identified 'knowledge and understanding of fitness and health' as one of four aspects of skills, knowledge and understanding that should be the central focus for teaching and learning within the area based framework (see Chapter 2). Arguably, now more than ever, the statutory requirements are such that there is very notable scope for ongoing contestation of the form and focus of the subject amidst implementation of the requirements. This scope is not new (See Curtner-Smith, 1999, Curtner-Smith et al, 2001; Penney and Evans, 1999), nor unique to either physical education, or the NCPE (see below and Bowe et al, 1992), but can be seen to have been made far more explicit with the revised framework and requirements. This research was not concerned to either deny or obscure this scope for contestation on the part of teachers charged with implementation of the NCPE. Rather, it sought to explore the potential for teachers to actively and creatively utilise the flexibility inherent in policies issues to them, and more specifically, encourage them to thereby focus attention upon interests of health and physical activity in physical education. The research was therefore directly concerned with the notion of 'slippage' (Bowe et al, 1992) in the implementation of policies and specifically, how teachers can actively seek slippage in particular directions. My work sought to advance arguably more creative readings and interpretations of current policy in physical education, and to explore the potential for discourses of physical activity and health to be compatible with, rather than positioned or portrayed as competing with or contradictory to other more established discourses in and of physical education.

Before exploring in more detail matters associated with physical activity and physical education, and the NCPE in England, it is appropriate to identify the key aspects of education policy sociology and curriculum theory that have provided a framework for critique and ongoing reflection throughout the research presented in this thesis. The following discussion therefore addresses understandings of policy and its relationship to practice. In Chapter 2, I then look in depth at the ways in which various interests are differently positioned, and have been accorded different status in the policies and practices of physical education in England, and in particular, in the development and implementation of the NCPE to date. Together, these first two chapters thus provide a detailed discussion of the theoretical and substantive issues that were central to my research and that are the focus of attention in this thesis. In Chapter 3, I then introduce key methodological aspects of my work and explain the phases of its

development that provided a reference point for the structure of the work presented in chapters 4 to 9. Finally, in chapter 10, in the light of the preceding data and discussion, I return to critically reflect upon the main issues that I have introduced here.

Policy and Curricula: Making the link.

Notions of 'policy' and 'practice' have traditionally been portrayed in educational research as distinct phenomenon where;

> Policy is described as an artefact, commodity or 'thing', made by certain individuals usually in the upper echelons of organisations, systems or the state, to be implemented by others in levels or sites 'below', thereby giving rise to 'practice'.
>
> (Penney and Evans, 1999, p.19)

From a so called 'top down' perspective education policy is constructed by central government agencies and individuals and, implemented or 'delivered in practice' at the school level by teachers who are portrayed as recipients rather than creators of policy, where there is a clear hierarchy in the positioning and the power-relationships inherent in it (Jewett et al, 1995; Penney and Evans, 1999). Policies and curricula in schools are thus portrayed as quite different and separate entities, with the former designed to inform the nature and focus of the latter. The development and subsequent revisions of the NCPE can be seen as reflecting a top down conceptualisation or vision of policy and curriculum development in education. The clearly limited involvement of teachers within the process of policy development, but the unequivocal responsibility accorded to them for implementation is particularly noteworthy. 'Top-down' change models have been criticised in relation to the arguably limited prospect that they offer for 'real' change to occur (Evans et al, 1997; Kirk, 1990). Sparkes (1991) contends that change arising from top down innovation invariably takes place only at the 'surface' level and often results in limited change in the values and beliefs that inform teachers' educational practices. The contention is that for 'real' change to occur, where change is deep, structural and lasting rather than superficial, fundamental shifts are needed in teachers' values, attitudes and beliefs (Capel, 2000).

Critics of a 'top down' perspective have prompted development of a 'bottom up' (Jewett et al, 1995) conceptualisation of the policy-practice relationship that emphasises 'the active role of the practitioner in the development of policy and curriculum change and the degree to which many policies in education are influenced and shaped by what happens in schools' (Penney and Evans, 1999, p.19). The argument from this viewpoint is that 'bottom up' reform is likely to be more effective because teachers can be seen to have an active, central and defining role in the process (Sparkes, 1991). It is their practice that is the first and key reference point for new policy developments. However, a 'bottom up' perspective still fails to break the dichotomous and hierarchical relationship between teachers and policy 'makers' and between 'policy' and 'practice'. The image is still of distinct entities, and of clear boundaries between them.

In their discussion of what they regard as critical shortcomings of a 'traditional' perspective on policy, as reflected in 'top down' and 'bottom up' models, Penney and Evans (1999) outline a different view of policy that has informed their work on policy and practice within physical education. They specifically highlight the need to develop a more holistic view of policy as a dynamic, complex and relational process, that acknowledges the overlapping relationships between different sites of decision making and action. Policy is thus understood and portrayed as 'process and not merely substance' (Raab, 1994, p. 24, cited in Penney and Evans, 1999, p. 21). From this perspective neither policy making nor implementation is confined to a single site, nor particular individuals, nor a specific moment in time. There are not only two levels to the process, but rather many and often overlapping sites of ongoing interpretation and action. Adaptation, modification and contestation of policy occurs at various points during the process, as policy is continually made and remade at sites throughout the process. Yet as Penney and Evans (1999) stress, this is not to imply that there are not important linkages and associated power relations in the process. The making and remaking 'is rarely in conditions that are without constraint, or that are not framed by the actions, discursive practices and policy decisions of others' (p. 21). The transmission and simultaneous transformation of policy thus involves the production of multiple texts in particular economic, political, cultural and institutional contexts that feature key power relations in terms of the scope for policies, and interpretations and transformation of them to feature of privilege particular interests (Ball, 1990).

Thus, there is the unequivocal acknowledgement of scope for some changes or 'slippage'[2] (Bowe et al, 1992) to occur as individuals interpret and 'implement' policies, but it is with recognition that only certain slippage may be possible in particular contexts of interpretation and implementation. Slippage therefore needs to be seen in terms of constraint as well as possibility. Critically, in relation to my concern with the particular shape and focus of physical education, Penney and Evans (1999) emphasise that none of the texts created in the process (that may be spoken, mental, written and corporeal), are neutral. Rather;

> All texts have a particular form and content, inherent in which are particular interests and ideologies. Any text will include and privilege certain interests and ideologies, equally, subordinate or exclude others. Texts are political, serving and promoting, but equally overlooking and subordinating, particular interests.
>
> (Penney and Evans, 1999, p. 24)

This is true not only of government texts, but also of texts produced by professional associations (for example, PEAUK), teacher educators, local education authorities, and teachers themselves. These issues highlighted by Penney and Evans (1999) are therefore as much concerned with looking at 'practice' as they are in considering policies issued by central government. In the next chapter I demonstrate this lack of neutrality in 'official' texts produced by government and/or its agencies, but also in commentaries on them, and in interpretations and implementations of them in schools. I specifically explore the ways in which physical educationalists in various arenas have positioned and expressed *discourses of health, physical activity and fitness* alongside and in conjunction with 'other discourses' in and of physical education.

[2] Bowe et al (1992) contend that when a policy is received, it will be read and interpreted and as a result of this process and a 'new' or 'hybrid' text will be produced by the reader. This process inevitably involves 'slippage' where the ways in which policy is read, its emphases and meanings and individual interpretation and understandings and interpretations are different, and thus policy can mean different things to different people in different contexts. Where such 'slippage' occurs, policy is interpreted, adapted, adopted and modified. Invariably there exists contestation and struggle over discourses, in which we can see reinforcement and/or rejection of discourses present in texts and, potentially, the introduction of new discourses to those texts.

Discourse and the policy process

'Discourse' is a far from simple, but arguably invaluable concept in analyses of policy and curricula developments, and specifically in the explorations of the representations of particular values and interests in education. Fairclough (1999) suggests that as a result of the numerous conflicting and overlapping definitions that have emerged from various theoretical and disciplinary standpoints, 'discourse' is a difficult concept to define. In keeping with notions of discourse as referring to different ways of structuring areas of knowledge and social practice, where discourses are manifest using language and other symbolic forms (see Fairclough, 1999), I use the term 'discourse' to refer to the particular way reality is portrayed through recurring patterns of language and visual images about a phenomenon. The portrayal serves to establish a 'world view' that becomes a 'taken for granted' perspective of the way in which a phenomenon, such as 'physical education' will be understood (Tinning, 1997). In this way;

> Discourses do not just reflect or represent social entities and relations, they construct or 'constitute'; different discourses constitute different entities in different ways and position people in different ways.
>
> (Fairclough, 1999, p. 3)

The concept of discourse is thus about more than solely language and speech. As Ball (1993) highlights, it is fundamentally about values and interests;

> Discourses embody the meaning and use of propositions and words. Thus certain possibilities for thought are constructed. Words are ordered and combined in particular ways and other combinations are displaced or excluded.
>
> (Ball, 1993, p. 14)

Kirk (1992, p. 42) highlights that discourse demands that we consider all forms of communication and 'meaning-making activity, whether this be intentional, conscious, unconscious, explicit, tacit, or reflexive'. Similarly, Penney and Evans (1999, p. 24) have stressed that 'the concept of discourse is not only about what is said, but also what is not said', drawing attention to the role and importance of silences and absences in the creation of meanings and understandings. As we will see, in many instances gaps or omissions in policies can have profound effects in relation to

interpretations of them, and specifically, what will be or envisaged as a legitimate interpretation and response. Talk of 'legitimacy' is important here, pointing once again to the lack of neutrality of policy developments in education, but also to inequalities in the positioning of individuals in the policy process. As Penney and Evans, (1999) explain, not everyone has an equal say in determining the visibility of particular discourses. Invariably inequalities exist in relation to 'who has what say' and thus, what (and whose) interests and discourses are included or excluded, privileged or subordinated in texts and the institutional, professional and/or political contexts which they relate to. In this respect, for Ball, (1993, p. 14) discourses are about not only about what is said and thought, 'but about who can speak where, when and with what authority'. As we shall see (and as Penney and Evans, 1999 have documented), this notion has been of particular significance in the development and subsequent implementation of the NCPE and needs to be recognised as a key issue when referring to the position, or potential (re)positioning of interests of health in physical education.

Despite government pressure to privilege particular agendas within 'official' texts (Evans and Penney, 1995; Penney and Evans, 1997, 1999), teachers' readings, interpretations and understandings of official texts remain instrumental in shaping which discourses in and of physical education will be afforded centrality in curricula and pupils learning. While multiple (frequently contradictory and competing) discourses, each expressing particular interests and ideologies, will be embedded within the policies and practices of physical education, some will be accorded a higher status that others. Some will be marginalized and others privileged. In this way, both government and teachers' texts will serve to either reinforce or challenge current dominant agendas in teaching and learning in physical education. Both have a key role to play in relation to the interests in the extent to which discourses of physical activity and health will come to the fore in this teaching and learning.

Scope for 'slippage'

In their analysis and evaluation of the NCPE, Penney and Evans (1999) discuss the potential scope for many different interests and values to be expressed and promoted within physical education;

> So what possibilities remain for innovation in schools, for teachers to express their professionalism, expertise and authority in the contexts of physical education? Has the system of classification and framing inherent in the National Curriculum become so constraining, so demanding, that teachers now simply have to deliver what they are told, and do what they may, or may not believe to be in the interests of the pupils in their care? Looking particularly to the future, we need to recall that all texts contain *multiple discourses*, compromises and contradictions, and that the National Curriculum for Physical Education in England and Wales is no exception in this respect. There thus remains at least some potential for discourses currently subordinated by the interests of competitive sport to find expression in subsequent readings, and for distinctly 'different' models of physical education to then emerge.
>
> (p. 126, original emphasis)

The research presented in this thesis has sought to actively pursue the potential that Penney and Evans refer to above; that is, the scope for varied, selective and creative interpretations of policies, such that new or different discourses may come to the fore in future practices. It was directed towards engaging explicitly with the notion of *implementation* of policy featuring an *ongoing* contestation and struggle over the position and representation of particular interests, and therefore the form and focus of physical education curricula. Arguably, the context for the research was one in which implementation of recent government policies has featured, some, but notably limited contestation. As others as previously identified, there have been important commonalities in the 'slippage' arising as the official texts have been interpreted and implemented in schools in England. While it is undeniable that teachers have reacted to the NCPE in a number of different ways, invariably, interpretations of the NCPE have featured adaptation, modification and recreation so as to make the NCPE congruent with existing ideologies and perspectives, and manageable within the unique contexts within which teachers work. The indication has been that responses have featured notably limited transformation in the values and beliefs guiding and informing practice in schools (Curtner-Smith, 1999; Curtner-Smith et al, 2001; Evans and Penney, 1995; Laws and Aldridge, 1995; Penney and Evans, 1999). In essence the NCPE has largely been read and adapted to match what teachers do already. 'Slippage to the familiar' has occurred such that physical education in many schools continues to reflect established practices and reinforce established discourses.

The NCPE and government texts related to it have been identified as conservative, doing little to encourage deviation from traditional and established practices (Penney

and Evans 1999). Yet despite the limited prompts for teachers to pursue alternative interests and discourses in and of physical education, Penney and Evans (1999) maintain that the NCPE is still a text that presents scope for the curriculum to be 'recreated' and 'produced' rather than simply 'reproduced'. Arguably, there is a real need to explore positive and productive slippage that centres on new readings of, and responses to, official policy texts in physical education. This critical perspective underpins the research presented in this thesis, and in this respect, I regarded the concepts presented by Bernstein (1990) as insightful tools for the critical exploration of discourse and policy in education. Bernstein's work is therefore the focus in the remainder of this chapter, and represents an important backdrop to the research as a whole. Specifically, I direct attention to Bernstein's (1990) curriculum theory and concepts of voice and message.

Curricula classification, voice and message

For Bernstein (1990, 1996) 'schools portray certain categories (or specialised contexts) of knowledge as legitimate or valid, and the texts that we produce both arise from and serve to reinforce or potentially challenge these categories and the boundaries between them' (Penney and Evans, 1999, p.34). In seeking to pursue ways in which dominant power and control relations are realised as forms of pedagogic communications, Bernstein (1996) uses the principles of 'classification' and 'framing' to refer respectively, to the 'translation of power and of power relations', and the 'translation of control relations' (p.19). Essentially, 'classification' is concerned with the 'what' of pedagogic discourse and the categories, contents and relationships to be transmitted, and 'framing' refers to the 'manner of their transmission', i.e., 'how' meanings are put together in pedagogic discourse (Bernstein, 1990, p.196, cited in Penney, 1998a, p.8). More specifically, 'classification' concerns 'relations between categories, whether these categories are between agencies, between discourses, between practices' (Bernstein, 1996, p.20) and thus relates to the ways in which 'power always operates on the relations between categories...in this way, power establishes legitimate relations of order' (Bernstein, 1996, p.19). Bernstein (1996) suggests that it is possible to distinguish between strong and weak classifications according to the degree of 'insulation' between categories explaining that,

> In the case of strong classification, we have strong insulation between the categories...each category has its unique identity, its unique voice, its own specialised rules of internal relations. In the case of weak classification, we have less specialised discourses, less specialised identities, less specialised voices.
>
> (Bernstein, 1996, p. 21)

Penney and Evans (1999) have contended that the NCPE is strongly 'classified' through its composition of a series of distinct and divorced areas of activity. In particular, they highlight that the NCPE structure remains based around a curriculum of 'blocks', with an absence of prompts to consider their potential commonality. Instead, policy developments have reinforced the divisions between these and the distinctiveness of the various areas of activity. There has been repeated silence in relation to the similarities, connections and possible links between them.

Penney and Evans (1999) consider that this strongly classified structure has;

> ...an important bearing not only on how the subject matter stands in terms of value and status in relation to other subject areas, but also how then within the subject those areas of the curriculum, for example, stereotypically defined as 'men's physical cultures', are positioned in relation to women's; or local/community cultures positioned in relation to school curriculum cultures; 'able' in relation to 'less able' and so on.
>
> (Penney and Evans, 1999, p. 117-118)

Classification is paralleled by the principle of framing. Atkinson (1985, p.135) explains that 'where classification characterises curriculum, framing refers to the context of knowledge transmission – that is, the pedagogic encounter'. Teacher–pupil relationships are thus central to the notion of framing. Within this relationship the relative 'strength' of the 'frame', i.e., the boundaries and possibilities in relation to what may or may not be transmitted, and who is able to play a part in determining this, is variable. Where framing is strong, options are limited; where it is weak, the range of options is greater. Thus 'frame refers to the degree of control teachers and pupils posses over the selection, organisation, pacing and timing of the knowledge transmitted and received in the pedagogical relationship' (Bernstein, 1971 cited in Atkinson, 1985, p.135-136). The concept of frame is about 'who controls what'. Specifically, it 'regulates relations within a context, it refers to relations between transmitters and acquirers, where acquirers acquire the principle of legitimate

communication' (Bernstein, 1996, p. 27). As such, frame is a concept relevant and applicable to analyses of the policy process as a whole. For Penney and Evans (1999) it helps 'articulate the level of 'freedom' and 'control' experienced by individuals and agencies at various policy sites; the potential for, but also 'boundaries' to, the slippage possible in the policy process' (p.27).

Penney and Evans (1999) identify a number of sources of 'frame' (for example, political, ideological, economic) in relation to who and what 'underpinned, facilitated and encouraged continuity' and 'set the boundaries as to what could and would' be considered as a legitimate NCPE in England and Wales. In subsequent chapters we see the ways in which various factors have served to limit understandings and expressions of discourses of physical activity and health in physical education, and specifically, interpretations and implementations of the NCPE in England and Wales.

Implicitly linked to principles of 'classification' and 'frame' are notions of '*voice*' and '*message*'. Penney (1998a) explains that through the form, strength and shaping of categories of knowledge and relations between them, the curriculum is provided with a specific emphasis, orientation or 'voice'. As others have shown (Williams and Woodhouse, 1996; Penney and Evans, 1997) within physical education certain 'voices' are privileged over and above others. It is the realised form of the voice, (that is, the curricula and learning experiences developed within the context of particular classification, Penney, 1998a), that represents the 'message'. Bernstein (1996) describes how;

> ...if the principle of classification provides us with our 'voice' and its means of recognition, the principle of framing is the means of acquiring the legitimate 'message' and in this way classification establishes voice, and framing establishes the message; and they can vary independently.
>
> (p. 26-27)

The key point here is that because of this independence, the message can either reinforce, or it may challenge a particular voice (Bernstein, 1990; Penney, 1998a). In physical education the contention is therefore, that there is scope and potential for teachers to develop pedagogical texts that will constitute a challenge to the discourses dominant in the official texts of the NCPE, and in doing so, challenge commonly held assumptions about what should be the focus of teaching and learning in the subject.

The development of such a 'message' is about exploring the 'scope for slippage' in the creative ways that it has been argued have yet to be explored in interpretations and implementations of current statutory requirements. The creativity pursued in this thesis centres on raising the profile, status and representation of discourses currently subordinate to, or subsumed by, the discourses that are privileged in and promoted by the official texts of the NCPE and that therefore inform the dominant voice of contemporary physical education in England. For Bernstein (1996), changing the 'insulation' between categories, that is the space or distinction between one discourse and another, holds the key to changing principles of classification and thus challenging the voice, 'it is the silence which carries the message of power...whatever maintains the strength of the insulation, maintains the relations between the categories and their distinct voices' (p. 20). Breaking the strength of this insulation and thus 'filling the silence' is crucial to challenging the dominant voice and in turn, establishing a new voice that will support and promote new messages. Thus, 'changing the dominant voices within physical education can be seen as the key to changing its message' (Penney, 1998a, p. 11), but at the same time, developing new messages may be the critical catalyst for a change of voice.

Arguably, interests of health and physical activity within physical education policy and curricula are ones that currently permeate across and within dominant activity based discourses. They therefore have the potential to 'fill the silences' between the dominant categories, and in so doing, reposition certain discourses in relation to others. In Bernstein's terms, these agendas have the potential to challenge the insulation between the established categories, thereby weakening the classification and signalling a focus that may be a basis for the development of messages that will express and promote a different voice, and in doing so, give legitimacy and status to other knowledge, values and interests in and of physical education.

Concluding comments: The scope and focus of my research

Within the research presented in this thesis I sought to explore the possibilities inherent in the NCPE to (re)focus attention upon issues of physical activity and health in physical education. The scope for pedagogical and philosophical change is specifically pursued through efforts to integrate concerns to advance pupils' skills,

knowledge and understanding of principles relating to participation in appropriate amounts of physical activity, with interests in development of their skills, knowledge and understanding in relation to performance in particular activities.

Specifically, the research addresses:

- The physical activity levels of pupils in physical education within invasion game contexts at key stages 3 and 4, in terms of the amount of lesson time spent participating in predetermined levels of activity associated with health benefits (Chapters 4, 5 and 6).

- The extent to which the activity levels attained within these physical education contexts contributed towards recommended physical activity and health guidelines (Chapters 4, 5 and 6).

- The different contribution, in terms of direct activity participation, that different types of lesson and different elements of lessons made to the time children spend at particular physical activity levels (Chapters 5 and 6).

- The implications of the findings in relation to the above issues for matters of curriculum design, lesson structure and teaching approaches in physical education, and specifically in the context of implementation of current NCPE requirements (Chapters, 4, 5, 6, 8, 9 and 10).

- Strategies and methods that may be used by teachers and pupils in order to extend understanding of physical activity levels and to enable pupils to effectively monitor and regulate their physical activity levels within and beyond physical education (Chapter 6).

- The scope for these strategies to be a basis of new 'messages' in physical education teaching that emphasise physical activity and health as central concerns and thereby pose a clear challenge to the voice of official texts (Chapters 8, 9 and 10).

- The perceptions of pupils and teachers in relation to interests of health and physical activity in schools and physical education and their reflections of efforts in this research to encourage a new or alternative message (Chapters 7, 8 and 9).

In relation to all of the above points it is necessary to acknowledge that we cannot talk in a simplistic way about discourses of health and physical activity, any more than we can discourses of physical education or of sport. In the following chapter I therefore outline the complex and contested nature of these issues, and in particular highlight that, *which* discourses of health have been brought to the fore in physical education is a key issue in considering whether if privileged in the message, these discourses will

reinforce or challenge the dominant voice. As we will see, discourses of health may be highly conservative and it is only *certain* discourses of health that will be transformative if privileged in physical education teaching and curricula. Furthermore, we cannot assume that all discourses of health will be acceptable, or regarded as legitimate within arenas of policy and practice in physical education. Once again, we need to recall the centrality of power relations in any policy and curricula developments in education. An exploration of the history of the contested relationships between various discourses in and of physical education, physical activity and health illustrates these points, whilst also providing an important contextual reference for discussions of contemporary relations between health and physical education.

# Chapter 2: Review of literature

## *Complex and contested relationships:* Physical education, physical activity and health.

Review of Literature

> Immersion in discourses related to the topic(s) of interest is essential to framing a conceptually sound study. Reading relevant literature connects one's interests to the concerns of broader discourse communities and eventually yields cogent responses to the questions "So what?" and "Who cares?"
>
> (Piantanida and Garman, 1999, p. 37)

In relation to the points raised by Piantanida and Garman, the following review of literature seeks to identify the key substantive interests and associated theoretical issues that have underpinned and been pursued in my research. In particular, the longstanding association between physical education and health and more specifically, the complex and contested relationships between physical activity, health and health-related exercise (HRE) in physical education are discussed. This provides a foundation from which to critique the ways in which health, physical activity and HRE have variously been positioned within the National Curriculum for Physical Education (NCPE). As we will see, in many respects this positioning has lacked clarity and to a great extent has been left for teachers to determine in the context of their implementation of NCPE requirements. As explained in Chapter 1, from a substantive and theoretical viewpoint it is this freedom or flexibility inherent in the statutory requirements of the NCPE that are the central focus in this thesis. This research sought to explore the potential for teachers to creatively utilise the flexibility and to bring interests in health and physical activity to the fore in physical education. This chapter provides an essential backdrop to the research by looking in depth at the ways in which various interests, and in particular those associated with health and physical activity, have been differently positioned and accorded different status in the policies and practices of physical education. This thesis does not contain the scope for exploration of every possible interest in and of physical education curricula, but it is important to acknowledge the presence interests other than those of physical activity and health. Thus, prior to focussing fully on matters of physical activity and health I provide a brief description of the variety of interests within physical education.

Value orientations and curricula foci in physical education.

Throughout the work developed in this thesis I explicitly present a view of and for physical education that places interests of health, and specifically the promotion of

physical activity, at the forefront teaching and learning in physical education. Yet, I also acknowledge the existence of different interests at play in the development of policies and curricula in physical education and the implications of particular priorities in relation to these interests for the form and focus of policies, curricula and pedagogy. Jewett et al. (1995) have identified five alternative 'value orientations' that reflect physical education teachers' priorities for learning subject matter and content, personal development, socio-cultural goals or a combination of these. The orientations are: disciplinary mastery; learning process; self-actualisation; social reconstruction; and ecological integration. Disciplinary mastery represents the most traditional orientation to curriculum development where priorities for teaching and learning are associated with mastering subject matter, for example, basic movement skills, physical competence and knowledge of sports skills. From the learning process perspective 'how' individuals learn becomes as important as 'what' is learned. Curtner-Smith and Meek (2000) suggest that teachers who adopt a learning process value orientation believe that 'it is impossible for schools to cover all the important subject matter properly and, therefore, teaching pupils skills that will enable them to learn for themselves is vital' (p. 28). Those teachers who place high value on the self-actualisation perspective believe that the curriculum should centre on the child and be directed towards the growth of the individual learner's self-direction and self-management abilities. A social reconstruction value orientation reflects the notion that societal needs take precedence over individual needs. Schools are regarded as vehicles for improving society and curriculum goals emphasise social responsibility. Finally, teachers who favour an ecological perspective emphasise a balanced curriculum with relatively equal considerations for the needs of the learner, the subject matter, the educational context and social concerns through a 'personal search for meaning' (Jewett et al, 1995, p. 28). From this perspective 'the curriculum goal is to encourage students to search for personal meaning through participating in various physical activities, mastering movement knowledge, and enhancing sensitivity to the environment in which they live' (Chen and Ennis, 1996, p. 339).

Jewett et al. (1995) have linked these alternative value orientations to different curriculum models and pedagogical strategies for physical education curricula. They identify five different curricula models:

- **Sport Education**: Develops sports skills, strategies and understandings through learning to participate in sports. Provides opportunities for participation in sport activities.
- **Fitness education**: Develops knowledge about fitness and learning associated with the benefits of participation in regular activity.
- **Movement analysis**: Develops skilful movement knowledge and understanding of the mastery of movement skills and problem-solving ability.
- **Developmental**: Concerned with self-esteem, socialisation and responsible choice, a holistic search for personal identity.
- **Personal meaning**: Goal of individual development, environmental coping and social interaction with a focus on a search for personal meaning. Learning in a social context.

Similarly, Hellison and Templin (1991) have identified a number of potential models of physical education curricula. They see the major ones as: 'Motor skill and game models', where the focus is upon development of sports skills typically in a variety of games. 'Fitness Models' with a focus on the development of health and fitness goals and 'Personal-Social Development Models' where curricula emphasises concepts associated with the affective domain, such as self-image, motivation and co-operation, moral values and social responsibility. Although these models are portrayed as mutually exclusive, in many instances the reality is that the curriculum is a mix of models, with the central issue being what is the balance of priorities in the mix? Like Jewett et al, (1995) and Hellison and Templin (1991), Metzler (2000) has also presented a 'model-based' approach for physical education curricula. The models Metzler (2000) identifies are: Direct Instruction; Personalized Systems for Instruction; Cooperative Learning; Sport Education; Peer Teaching; Inquiry Model; and Tactical Games. Yet Metzler (2000) also highlights the need for teachers' critical engagement with the issue of what is the 'right tool for the right job'- pointing specifically to the need for use of different and multiple strategies in the light of the diverse learning outcomes that are sought - encompassing 'all three of the major domains of learning: psychomotor, cognitive, and affective. In Metzler's view,

> If programs work toward multiple learning outcomes, across all three learning domains, teach students with different abilities, and include a wide variety of program content in the curriculum, there can be no 'one best way' to teach physical education.
>
> (Metzler, 2000, p.14).

Instead Metzler points to the need for physical education teachers to be able to use a number of different 'instructional models'. Both Jewett et al. (1995) and Hellison and Templin (1991) suggest that the curricula models that they describe should only be considered as generic categories from which several different curriculum frameworks might (and should) be developed. Arguably, the models are relatively simplistic and is important to acknowledge that there is no one view of what the range of alternative curricula are or should be, and that the range is changing as people develop new ideas (for example, social responsibility, Hellison, 1995; Parker and Hellison, 2001) and hybrids of existing models, (for example, with Teaching Games for Understanding applied through a 'situated learning' perspective, Kirk and MacPhail, 2002) and variations on the Sport Education Model (Hastie and Buchanen, 2000). Certainly, the models presented in these frameworks are not an exhaustive description of what is possible within physical education curricula, and in important respects alternative curricula are out there to be created.

## Complex and contested relationships: Physical education, physical activity and health

### An historical perspective

Colquhoun (1990) contends that the 'health and physical education association' has remained as a central construct in the development of school physical education curricula throughout the 1900's. Penney and Evans (1999) have drawn attention to the extent to which and ways with which contemporary physical education policy and practice has debated and contested this association and invariably obscured health interests in physical education. In order to gain an appreciation of the complexity of current issues surrounding health and physical activity in physical education, it is necessary to pursue the various conceptualisations of health that historically have featured within the education systems of England and Wales. This perspective reveals the various discourses that have previously influenced, and continue to influence curriculum construction within physical education.

The notion of a curriculum promoting physical activity and exercise for health benefits is certainly not a new one (Williams, 1988). It has been commonplace for claims in relation to the value of physical education to cite the contribution that physical education makes to 'health' as a key justification for the inclusion of the subject in schools curricula (Parry, 1998). Indeed, Kirk (1986) suggests that it was primarily through an association with health that physical education became established as a school subject in the curriculum of state secondary schools in the early 1900's. This association with health was largely based upon a particular notion of health; one that was concerned to reflect individual prevention of disease (Williams, 1988). Kirk (1986, p.167) cites the first Board of Education National (British) Syllabus for Physical Education as stating; 'The primary objective of any course of physical exercises in schools is to maintain, and if possible, improve, the health and physique of the children. This may be described as the *physical effect'* (Board of Education, 1905, p. 9).

A 'medico-health' rationale for physical education

The way in which physical education was conceived in the official discourse of the curriculum of state elementary schools in the early 1900's centred around the context of a medico-health rationale that had arisen through resistance against the proponents of military drill as the defining feature of a physical education curricula (Kirk, 1992). This framework for health within physical education focussed on physical activity as a compensatory mechanism for, and possibly remedy to, inherited and acquired physical defects and deformities associated with poor working class living conditions. Concerns about the implications of such conditions for an efficient workforce and fit military served to further reinforce the strength of this physical education and health framework (Harris and Penney, 1997). Kirk (1992) explains that despite the association between physical activity and health *in* physical education stretching back to at least the mid 1800's, the use of physical education as a means of contributing to the health of school children was, largely for reasons of social class, restricted to the state elementary school system. Similarly, Williams, (1988) points to the notion of 'health' during the early 1900's as rather simplistic and qualitatively different from a modern concept of health. Williams (1988) suggests that 'health as construed today

and implying much in terms of quality of life, was in fact unattainable for large numbers of the population due to poor living conditions' (p. 1).

A medico-health conception of the physical activity/health relationship was also embedded in the form of Swedish gymnastics incorporated into the physical education curricula of some private girls' schools. However, in this context, discourses associated with femininity and the development of elegance, poise and posture and as a physical prerequisite to motherhood were the dominant features of 'exercise for ladies' (Kirk, 1992; Scraton, 1986). Williams (1988) contends that conceptualisations of health and fitness in pre-war physical education for both boys and girls were largely concerned with short-term measures that could be achieved by ensuring that children participated in some form of systematic school-based exercise. Certainly, during the early 1900's health issues had an undeniable place within school and physical education curricula, yet the focus and status of 'health interests' were clearly varied and contested. The contestation continued during the post-war period, which saw further changes in the relationship between physical education, physical activity and health school curricula. Bray (1991) contends that during the 1950's the association between physical education and health drifted and 'lingered' within school curricula. However, by the mid 1950's it is also notable that the medico-health rationale was undermined by two main factors. Kirk (1992) explains that;

> ...by the end of war the female gymnasts had begun to defect in large numbers from Swedish gymnastics and to reject the entire medico-health rationale for their work, turning instead to an aggressively anti-functionalist form of child-centred progressivism in their adoption of educational gymnastics. The second blow to the medical influence in physical education in state schools came in the form of the male physical educators who began to populate the government-run secondary schools in large numbers after the war and to champion competitive games and sports.
>
> (p.131)

Physical education and a 'scientific' rationale

During the post-war period new interests were being explored in relation to health in the context of physical education. Specifically, these interests formulated notions of a 'scientific' basis for physical education. This new 'functionalist' framework for physical education reflected the development, promotion and measurement of

physical fitness, and in particular, strength and endurance through the application of scientific principles associated with the physiology and kinesiology of exercise.

The rationale for a shift towards a scientific 'fitness focus' for physical education arose primarily from two specific contemporary concerns of the 1950's; the perception that a lack of physical fitness based on scientific principles was at the root of the demise of Britain's standing in the international sporting arena, and Britain's diminishing influence in the international market place was a result of the self-satisfaction and moral and physical laxity of the working population (Kirk, 1992). Advocates of this physical fitness approach to physical education claimed that establishing a framework for physical education whereby the major linking concept between physical education and health primarily reflected the development and progression of individual physical fitness could effectively address these concerns of the time. As we will see, discourses associated with physical fitness have repeatedly been accorded a privileged position within physical education, arguably because of their compatibility with key discourses of sport and performance. However, in relation to this we also need to note that during the post-war period the focus on physical education producing measurable improvements in strength, stamina and speed was primarily projected by the influx of male physical educationalists into state elementary schools. These often 'ex-military' males pioneered a more vigorous physical fitness approach to physical education where fitness was regarded as an essential and specific capacity to achieve a particular outcome. This conceptualisation of the nature of the relationship between physical education and health represented a very clear departure from, and was a sharp contrast to, the female 'gymnasts' view of the exercise-health relationship for whom the development of fitness per se was not a central or defining feature of physical education nor was there was inherent desire to use the positive effects of exercise for achieving any specific outcome (Kirk, 1992).

The key assumption of the new scientific functionalist view of physical education and health was that whatever else physical education may contain, the basic and essential element was 'functional physical activity'. However, it is important to note that the association was not simply with physical activity of <u>any</u> kind, but rather, activity in which the development of muscular power and endurance were central and where the overriding aim was the development of the physical and physiological

performance of the individual (Kirk, 1992). The rise in popularity (amongst dominant male physical education teachers) of a functionalist rationale for health and physical education in schools was reflected in the widespread adoption of a new 'scientific, technically and educationally progressive' concept of circuit training. Indeed Kirk (1992) suggests that;

> The publication of Morgan and Adamson's *Circuit Training* in 1957 was arguably the most single most important contribution of the decade to scientific discourse in physical education in terms of giving expression to some of the ideas of the scientific functionalists, and in addition providing male physical educators with a set of practical principles and a technology for fitness development in schools.
>
> (p. 145)

The association of interests of health and activity in physical education with fitness and performance served to promote an inherently gendered dimension of the subject. It showed that issues and particular interests associated with health and physical education were inseparable from openly gendered power-relations relating to who was in a position to shape the direction of and developments in physical education (Harris and Penney, 2002). We can see that discourses of physical education, and more specifically of health in physical education were very much informed and directed by who could speak 'where, when and with what authority' (Ball, 1993, p. 14). Specifically, men, and practices established in male physical education training institutions, had greater status and arguably 'the upper hand' in developments (see also Kirk, 2002).

In parallel with the rise of a scientific functionalist approach to physical education, other discourses in and of education and physical education began to gain prominence in schools during the post-war period. In particular, a broadening view of health education as a multi-dimensional concept that went beyond the physical dimensions of health to include physical, intellectual, emotional and social aspects called into question notions of position of physical education as 'providing health education'. Health education was increasingly seen as synonymous with the *whole* school curriculum, and 'whilst physical education had a part to play, its de facto status as health education was indefensible' (Kirk, 1992, p.135). Discourses of health were in contrast to those of fitness and thus clearly positioned outside of the dominant discourses in and of physical education. Williams (1988) has suggested

that in the changing educational climate of the post-war period, physical educationalists were anxious to secure the position of the subject on more than primarily 'physical' grounds, and therefore explored ways in which physical education might contribute to broader 'educational' aims associated with moral, social, intellectual and cognitive development. This shift in terms of justification for physical education coupled with the increasing dominance of team games in the subject (see below) signalled a decline in the importance attached to discourses of health within physical education (Williams, 1988).

During the 1960's the emergence of social problems and concerns with regard to increased automation, mechanisation, urbanisation and a growth in sedentary lifestyles began to again change the focus of health issues in physical education and in schools (Bray, 1991). The provision of physical education in schools became perceived and promoted as a solution to these apparently rising societal trends (Kirk, 1992). However, in important respects, established 'traditional' discourses of physical education (in the form of gender differentiated team games, physical fitness, circuit training for boys and educational gymnastics for girls) continued to be privileged within physical education. Furthermore, there was an ongoing preoccupation within the physical education profession with existing notions of 'functional fitness'.

The 1960's also saw a continuation of the gender divisions in physical education and in relation to interests in health in physical education. The development of strength and endurance through circuit and weight training had become firmly established as a major element of the physical education curriculum provided for boys in state secondary schools. In contrast, physical education for girls remained focused upon assumptions about dominant ideologies relating to physical ability, motherhood and sexuality (Scraton, 1986). Laban's 'Movement Education' form of gymnastics that was characterised by co-operation, discovery and aesthetic and creative experiences emerged as a defining feature of girls' physical education. Clearly, this was a feature that 'did little to challenge the dominant ideological assumptions of the innate physical inferiority of women' (Scraton, 1986, p. 75). With Flintoff (1990), Hargreaves (1994) has suggested that gender differences remain very much engrained within physical education and that little has been done to change conventional ideas that normalize such inequalities. Harris and Penney (2000, 2002) have identified the

existence of distinct 'female' and 'male' versions of health in physical education and contend that gender differentiated patterns of provision have continued to be reflected and reinforced via 'different' health discourses in physical education. They identify a curriculum characterised by keep-fit activities to music emphasising weight control and body management for girls, and one characterised by 'fitness' activities, mainly featuring circuit training and running with a focus on the development of strength and physique for boys.

1980s: Health, Health-Related Fitness and physical education.

Kirk (1986) has suggested that although a health : physical education link remained throughout the 1900's, until the mid 1980's the contribution of physical education to children's health has 'tended to exist only implicitly in the physical education curriculum, more often considered to by teachers to be a by-product of participation in physical activity rather than a directly planned for and intended outcome' (p. 167). Cultural, social and attitudinal changes were then reflected in the emergence of a 'new' concept within physical education relating to health; Health Related Fitness (HRF) and the education of pupils in relation to concepts associated with the positive benefits of physical activity and exercise were constructed around the existing dominant conceptualisations of fitness and exercise that were prevalent in physical education. In this way, the scope for *various* health interests to be pursued was largely constrained by the privileging of established discourses over and above others. It is important to acknowledge the ways in which particular expressions of discourses of fitness and specifically those associated the various components of physical fitness, were privileged and reinforced under the umbrella of HRF. HRF clearly emphasised certain discourses of physical fitness and failed to embrace other more holistic discourses of health and fitness. In these terms HRF represented an extension of the established 'functionalist' sports-performance perspective.

During the 1980s a growing body of research evidence emerged claiming that increased physical activity might help protect against hypokinetic disease (i.e., those associated with lack of physical activity, such as back pain, obesity, and coronary heart disease) (Fentem, 1978, Sports Council, 1984). HRF was defined as, fitness characterized by a person's ability to perform daily activities with vigour and to

demonstrate traits and capacities that are associated with low risk of hypokinetic diseases and conditions (Bouchard and Shephard, 1991). The emergence of a causal link between ill-health and inactivity signalled a significant case for the justification of the inclusion of HRF in the physical education curriculum (Armstrong and Davies, 1980). In the context of these claims HRF arose as a significant development within physical education that was seen as part of the 'solution' to the increase in hypokinetic diseases (Harris and Penney, 1997).

The 1980's therefore witnessed a flourishing interest amongst the physical education profession in the ways in which a physical education programme could contribute towards illness prevention through health and physical activity promotion. Williams (1988) interpreted this increased emphasis as a 'revival' of interest in health and fitness coinciding with the emergence of the recognition of the dangers of coronary heart disease and the subsequent importance afforded to health and fitness in school physical education. Biddle (1987) referred to the HRF movement as one that possessed the potential to introduce significant changes in physical education and expressed the view that 'one shift of focus has had such a major impact in the 1980's that many teachers are questioning their philosophy across the whole programme' (p. 6). HRF represented a marked departure from the notion that health benefits derived from participation in physical activity are merely by-products of teaching (Kirk, 1986). However, as we shall see, although the emergence of HRF had the potential to signal a shift in the respective position of discourses of health in and of physical education, whether HRF represented a 'new' discourse was far less clear. Furthermore, its subsequent positioning, expression and status in the curriculum remained a matter of contestation. Indeed for some, the HRF movement was interpreted as doing very little to promote any 'real change' in relation to interests of health in physical education (Kirk, 1988; Sparkes, 1989a). Sparkes (1989a) argued that although many aspects of the HRF 'boom' in schools in the 1980's were innovatory, in the main the movement was characterised by 'innovation without change' where there was little new in the discourses of HRF. In many ways the delivery of HRF served 'to reinforce the ideologies that have dominated physical education since its early days which raises questions as to the possibilities of real change occurring' (p.60).

Certainly, despite the growth in interest in HRF, the ways in which physical education could or should contribute to 'health' was still by no means clear. Increasingly the HRF movement became associated with a variety of interests in physical education. HRF meant different things to different people and different things in different schools (Harris and Penney, 1997; 2002). In some cases HRF represented a 'concept' of physical education, whilst in others it was interpreted as a 'component' of physical education. Although attempts were made to distinguish between health and physical activity outcomes and 'fitness', (see for example, Biddle, 1987), and emphasis was placed on 'promoting *lifetime* rather than *immediate* fitness gains' (Fox, 1991), in the early HRF movement, curriculum construction and the implementation of HRF did not always mirror these planned objectives. In describing variation in HRF practice Evans (1989) details how;

> In recent years I have had the good fortune to witness examples of HRF in PE which are exciting, which endeavour to empower children, equip them with confidence and self respect and a knowledgeability about not only their bodies and their physical potential, but also the social and cultural influences which might bear upon their opportunities to achieve health, fitness and involvement in school and post school sport and leisure...However, not all my experiences have been so positive...I have witnessed examples of HRF in which children see to be learning what they cannot do, what physical shapes they cannot but ought to be, how unfit they are, how inadequate are their diets and that each must bear the blame for the physical condition that they are in.
>
> (p. 189)

Kirk (1988) has suggested that for some physical educators, the adoption of a health focus in physical education curricula led to a new 'functionalism', where only those activities that were perceived to relate directly to, and contribute towards fitness development were emphasised. HRF courses in the 1980's were largely dominated by concern for providing a sound, scientifically based rationale for HRF and in this way HRF programmes reflected certain discourses and promoted particular agendas. For example, Armstrong (1987) suggested that a comprehensive HRF programme should involve 'practical and experimental work in the gymnasium, on the playing fields and in the classroom laboratory' (p.25). Throughout the 1980's the theory and practice of exercise and movement science were central concepts underpinning HRF and as such dominated HRF provision and practice in schools. A comprehensive HRF programme was typically characterised by coverage of components associated with fitness, muscular energy, exercise and health, principles of exercise and training,

cardio-respiratory fitness, body composition, muscular fitness, flexibility, looking good and exercise, leisure and the community (Armstrong, 1987). In this way, the HRF movement continued to privilege historical discourses of fitness for performance that were compatible with the discourses of sporting excellence prioritised within physical education, and in doing so, arguably legitimated and reinforced the established 'voice' of the subject (Bernstein, 1990, see Chapter 1). The defining characteristics of physical education's contribution to health and physical activity were related to historical discourses that did not disappear, but rather remained and exerted a powerful influence on discourses of the present albeit under a 'new' name. In further considering physical education's contribution to health at this time, Kirk (1988) contends that;

> The worth of physical education activities are judged entirely in terms of their effectiveness for fitness, and this leads to an instrumental view of physical education that plays down or dismisses the valuable educational experiences pupils may gain from doing something physical.
>
> (p.122)

Fox (1991) identified two major criticisms that arose as the HRF movement gained momentum. Scrutiny focussed largely on the ideology of individualism inherent in early HRF and the difficulties HRF had in defining and conceptualising the relationships between fitness and exercise and the more holistic parameters of health and well-being. The notion of individualism focuses attention on the responsibility of the individual to take charge of their own health, and to a certain extent diverts attention away from wider social processes and inequalities that exist in relation to social class, gender and race. In these terms, for Sparkes, (1989a) HRF contained 'some significant silences and structured omissions' (p.61). In his view there was a 'strong tendency within the HRF movement to assume that an homogenous culture exists in which we are all free to choose our lifestyles. But, this is simply not the case' (ibid, p. 61). Evans (1989), whilst acknowledging that motivation and responsibility for attitude of mind matter in the achievement of health, is 'chilled to the bone' by the thought of a version of HRF in physical education where either intentionally or unintentionally teachers inform children that their lack of fitness, poor health, poor hygiene, and poverty is a consequence of their own or their parents irresponsibility. However, despite such debates, HRF programmes became largely associated with and orientated towards education for individual lifestyle change through improving

individual physical fitness. A rather simplistic 'get fit, stay fit, and be healthy' message, where health was primarily 'functionally' defined in terms of avoidance of hypokinetic disease, and where increased physical fitness through its impact on disease prevention was the primary route for health promotion, was privileged within physical education (Fox, 1991). For Fox (1991) the concept of health is multidimensional having physical, social, emotional and spiritual components. However, interpretations of health in this way were rarely present in delivery of HRF in physical education curricula.

HRF: Content and pedagogy.

As the 1980's progressed, Colquhoun (1990) pointed to teachers' confusion about HRF and a picture emerged of uncertainty regarding what should be included in a HRF course. Typically the delivery of HRF occurred in discrete blocks or units of work (see below for a detailed discussion of these issues) that was characterised by the development of physiological fitness through participation in activities that were sustained and vigorous and by the evaluation of pupils' fitness thorough a variety of testing procedures and measures. For example, pupils and teachers were readily encouraged to 'learn the skills of fitness' through participation in HRF programmes dominated by aspects of cardiovascular fitness. Major components of many HRF programmes were fitness 'training' and 'testing' used to evaluate pupil performance in a range of exercise parameters. These included flexibility, muscular endurance and most notably cardiovascular fitness (Armstrong, 1987). There has been considerable debate and contestation within the physical education profession in relation to the merits and shortcomings of using fitness testing for the delivery of issues of health in the curriculum. Harris (2000) details the ways in which fitness testing in schools has been criticized on the grounds that tests are relatively crude measures of fitness that serve only to expose the obvious in terms of varying physical maturation within the same age group. Fitness testing has been associated with experiences that lack meaning, are demeaning, embarrassing, uncomfortable, painful, negative experiences to be 'dodged' for many children, turning those especially at-risk sedentary children away from rather than towards participation in meaningful physical activity (Hopple and Graham, 1995; Rowland, 1995). In considering the appropriateness of fitness testing in schools Rowland (1995) contends that it is archaic and antithetical to the

goal of promoting physical activity. Yet, both pre-and post the introduction of a NCPE (see below) HRF programmes frequently featured a clear focus on fitness testing. Arguably, such a focus represented a particularly narrow vision for and expression of health and physical activity in physical education that reflected and continued to privilege discourses associated with a scientific rationale for fitness, competitiveness and sports performance. Harris and Penney (2000) emphasise that the 'fitness testing' debate should focus upon the purpose underpinning the use of fitness testing in specific contexts within the curriculum, rather than directing concern solely at whether or not it should feature in physical education. In their opinion, 'Depending on the rationale for its inclusion, and the context and style of delivery, fitness testing can have a positive, neutral or damaging effect on pupils' attitudes towards physical activity and active lifestyles' (Harris and Penney, 2000, p. 261). As explained below, in recent years there have been efforts to shift the focus of HRF programmes away from such a narrow vision of health and activity towards a more holistic approach to being active through the promotion of Health-Related Exercise (HRE).

1980s –1990s: From Health-Related Fitness towards Health-Related Exercise

Towards the end of the 1980's and in the early 1990's, the concept of HRF became somewhat superseded by the term 'Health-Related Exercise' (HRE). Penney and Evans (1999) attribute this shift in emphasis from the promotion of HRF to a focus on HRE as reflecting changes in opinion about health and exercise occurring in wider health communities and suggest that with this change in terminology, attention within the profession shifted towards 'ways in which various aspects of 'health' and 'fitness' may be addressed more holistically in and through physical education' (p. 130). Harris (2000) defines HRE as;

> Physical activity associated with health enhancement. Within the context of the National Curriculum for Physical Education, HRE relates to the contribution of physical education to health and its expression within the curriculum. Delivery of this area includes the teaching of knowledge, understanding, physical competence, and behavioural skills, and the creation of positive attitudes and confidence associated with current and lifelong participation in physical activity. Within the subject of physical education, the most appropriate teaching approaches involve learning through *active* participation in purposeful physical activity embracing a range of sport, dance, and exercise experiences including individualised lifetime activities.
>
> (Harris, 2000, p.2)

Whilst acknowledging the dangers of over-simplification, Penney and Waring (2000) distinguish between notions of HRF and HRE and contend that 'health-related fitness can essentially be associated with improvements in levels of *fitness*, (and established knowledge and understanding to enable such pre-defined improvements), primarily for the purposes of improved performance in sport' (p.22). In contrast, they associate arguably broader interests with HRE, in particular 'a concern to promote awareness, understanding and behaviours consistent with general health and well being, and to address the role of participation in physical activity in contributing to these' (p.22). Penney and Waring (2000) distinguish between HRF and HRE in terms of rationale, curricula characteristics, the particular focus of teaching and learning, teaching approaches and learning outcomes, and views of knowledge and education. Table 1 below shows these distinctions.

The different discourses promoted by HRF and HRE respectively are clearly visible. As we have seen, the former is associated with functional discourses of sports performance based around 'scientific' processes and 'measurable' outcomes, whilst the latter is associated with more holistic discourses of knowledge and understanding of health and the benefits of participation in lifelong physical activity. This distinction needs to be acknowledged as somewhat simplistic and arguably problematic. In particular, it is clear that neither HRF nor HRE took a single 'form'. Indeed a variety of 'myths' came to be associated with HRE that arose from previous historical conceptualisations of HRF. Harris and Elbourn (1992) have highlighted these and in pursuing the merits associated with HRE they state that HRE should not be considered as;

> ...all about fitness testing, anti-competition, anti-games, just about aerobics and skipping, a 'softly softly' approach to exercise, just about circuit training and cross country, all theory with piles of writing, and just about telling people what good exercise will do them.
>
> (p.6)

Harris and Elbourn's (1982) comments reflect that HRE was unavoidably and inevitably associated with the dominant discourses of sports performance and fitness that had featured in HRF. HRE, like HRF has continually been subsumed within a subject that privileges sport specific and performance discourses over and above those of health and physical activity. As we will see, this has important implications for

policy and practice. In particular, it has been clear that in this context, only certain discourses of health will be considered as legitimate within physical education and they will be accorded a particular status relative to other discourses.

Table 1 Characteristics of HRF and HRE

| Dimension / Characteristic | Health-Related Fitness | Health-Related Exercise |
|---|---|---|
| **Rationale** | Contribution of fitness to performance in sports | Contribution of participation in physical activity to the health of individuals and societies |
| **Characteristics of curriculum structure** | Fitness activities incorporated in activity-based curriculum, as distinct units(s) and/or within activity units. | Components of fitness addressed in conjunction with other activities and/or in distinct unit(s); possible inclusion of distinct 'theory' lessons addressing health-related knowledge and understanding in non-practical learning contexts. |
| **Focus of teaching and learning** | Activities promoting physical components of fitness | Knowledge and understanding associated with dimensions of fitness and health |
| **Teaching approaches** | Mixed... Direct with teacher 'as technician' and passive learners / | Development or more 'student centred' approaches, with greater student negotiation of learning experiences. |
| **Learning outcomes** | Awareness and understanding of health and physical activity in relation to performance in sport and healthy lifestyles;<br>- ? improved levels of physical fitness and health | Awareness and understanding of health and physical activity in relation to performance in sport and healthy lifestyles;<br>- ? improved levels of physical fitness and health |
| **Views of knowledge and education** | Predetermined – to be acquired in and through education for individual and collective benefits | Predetermined – to be acquired in and through education for individual and collective benefits |

(Penney and Waring, 2000, p. 21)

To a certain extent, changes in terminology were reflected in the text of the NCPE with the use of the term 'Health-Related Exercise' signifying a move away from 'Health-Related Fitness'. However, it is also important to note that the use of the term was the result of sustained lobbying activities (see Almond and Harris, 1997). For Harris and Penney (2000) the change in terminology 'identified the interface between health and PE as about more than the testing of children's fitness' (p. 251) and was symbolic of a new orientation in relation to health in physical education. They saw attention as 'shifting towards the role that physical education may play in promoting regular participation in physical activity with interests in lifelong health uppermost in

mind' (Harris and Penney 2002, p. 225). However, the extent to which the curricula orders impacted upon and influenced the planning and provision of HRE in physical education was arguably limited. In the section below I now turn attention to the NCPE and specifically, the ways in which particular discourses of health and physical activity have found, or failed to find, a place in this development.

The development of a National Curriculum: A *case* for health. But what *place* for *what* health?

As we have seen, the potential of physical education to contribute to health has long been acknowledged (Daley, 2002; Piotrowski, 2000). Historically, discourses associated with issues of health within physical education have carried a degree of political weight and credence. Yet whilst readily used to claim a place for the provision of physical education, issues of health have repeatedly been afforded minimal status in defining the subject. In the development of a National Curriculum in England and Wales physical education was only secured as a 'foundation subject' after much lobbying from within the physical education profession, but also, from other sporting and health organisations (Talbot, 1993). Furthermore, as we will see, the way in which the subject was defined in terms of structure and content impacted heavily upon the profile that health would have in the NCPE in policy and in practice. Arguably, this destined health to a marginal position, particularly in the curricula developed as the NCPE in many schools.

Politics, position and privilege in physical education

As the previous discussion has demonstrated, throughout the 1980's support for health-related issues in physical education was forthcoming and it seemed that the physical education and health relationship would be a significant one in the NCPE. Penney and Evans (1999) felt that;

> The introduction of the National Curriculum was an important opportunity to both consolidate some of the more innovative ideas that had found their way into physical education in the 1970s and 1980s, such as the introduction of health-related exercise, new forms of games teaching and coeducational PE and also to assess the need for further shifts in thinking and practice in the subject.
>
> (1999, p. 3)

For Cale (1996) the development of the NCPE perhaps served as the 'real test' of the extent to which health related issues had come to be accepted by the profession as valued component of physical education. Similarly, Fox (1992) interpreted the construction of the physical education curriculum as a 'golden opportunity' to redress the balance of a sport-based curriculum and provide a formal impetus for much needed curricula structure.

At the time of development of the National Curriculum, Almond (1989) declared that 'the need for a National Curriculum and the need for deliberations about the role of physical education in such a curriculum will provide the context for identifying a new, and hopefully, a more comprehensive vision of physical education' (p.125). Similarly, for Fox (1992) the entire process of rationalising, justifying and defining the content of the NCPE was a valuable exercise in its own right and one which 'raised the profile of physical education, provided a much needed impetus for breaking down the primary/secondary barrier and brought attention to some vitally important yet previously neglected issues' (p.8). However, as Penney and Evans have documented (Evans and Penney, 1995; Penney and Evans, 1999) the process of constructing a NCPE was complex and highly political. Furthermore, it was one that very openly served to legitimate and privilege particular discourses whilst marginalizing and subordinating discourses of health and physical activity in physical education.

The development of a National Curriculum, and particularly a NCPE in England and Wales vividly demonstrated that no curriculum is neutral, but rather always selective (Penney and Evans, 1997, 1999). As Penney and Evans (1997, 1999) have discussed, throughout the 1980's growing concern arose amongst the Conservative government in relation to perceptions of the state education system where 'traditional' educational aims were becoming increasingly displaced by other more 'progressive' ones. This 'decline in standards' was seen as a 'crisis in education' that prevailed across all aspects of the state education system and that thus required government intervention. In addressing these concerns, in 1988 the Educational Reform Act (ERA) was issued and with it, the principle of a statutory National Curriculum in England and Wales established. The ERA 'brought to the fore critical questions in education; in particular of what education is about, whose interests it serves and what the

curriculum in schools should therefore look like' (Penney and Evans, 1999, p.2). Penney and Evans (1999) contend that it became difficult to see what, other than a surface rhetoric, was new in the proposed curriculum. Indeed these authors claim that the National Curriculum did not propose a new or creative framework for school curricula, 'rather it sought to re-establish a traditional and easily recognisable curriculum in all state schools in England and Wales, centring on traditional subjects and reinforcing long-standing hierarchies between them' (p.33)[1]. As we shall see, arguably this was especially the case in the development of a curriculum for and of physical education and within this curriculum the location and expression of health issues.

The National Curriculum was quite specifically intended to 'raise standards by offering clear statements of objectives and attainment levels, by ensuring that these represent balance and relevance to adult concerns, and by regular assessment of levels of attainment reached, and at the same time to create the conditions for increased school and teacher accountability' (Kelly, 1990, p. 3). The structure for development and implementation of the National Curriculum centred around aspects identified as 'attainment targets' and 'programmes of study' (PoS) contained within four different 'key stages'. Attainment targets described the areas within which pupils would develop their attainments and referred to 'the range of knowledge, skills and understanding that pupils should be expected and helped to master as they progress through school' (DES, 1989, 3.11). Programmes of study detailed 'the essential matters, skills and processes which need to be covered by pupils at each stage of their education' (DES, 1989, 3.12). These programmes of study, and the various assessments of pupil performance (standard assessment tasks; SATs[2]) contained within them, were related to four 'key stages' of education. Key stages 1 and 2 covered education in the primary years, incorporating reception and year 1 and year 2 (ages 5 to 7) and years 3, 4 5, and 6 (ages 8 to 12) respectively. State education in the

[1] The 'core subjects' of English, mathematics and science and the 'foundation subjects' of design and technology, history, geography, a modern foreign language, music, art and physical education have been progressively introduced in a National Curriculum for 5 – 16 year olds. Implementation of core subjects began in September 1989, proceeded by design and technology in 1990, geography and history in 1991, and modern foreign languages, music, art and physical education in 1992.

[2] It was planned, although later modified (see Dearing, 1993) that pupils' performance in relation to attainment targets would be assessed and reported at the ages of 7, 11, 14 and 16, that different levels of attainment would be registered according to a 10 point scale, and that SATs would be used by teachers in formal assessments (DES, 1989).

secondary years comprised key stage 3 (years 7, 8 and 9; ages 12 to 14) and key stage 4, (years 10 and 11; ages 14 to 16).

In addition to the core and foundation subjects established several specific 'cross-curricular' themes were also identified as components of the whole curriculum, but not part of the statutory curriculum. Notably these themes included health education and also economic and industrial understanding, careers education and guidance, education for citizenship and environmental education (National Curriculum Council, 1990). Certainly the positioning of 'health' as a cross curricular theme had implications for the ways in which health and physical activity issues would be expressed in whole school and physical education curricula. Concerns were raised in relation to the status and likely expressions of health issues (Harris and Penney, 1997). In a seemingly very 'hierarchical' framework, health education lacked the high status afforded to the 'academic' core and foundation subjects. Below I pursue in greater detail the features of the development of the NCPE that served to position health in a particular way and set a particular 'frame' for future curricula development in schools.

Curriculum proposals: locating and defining issues of health

As Penney and Evans (1999) have discussed in detail, the construction stages of NCPE development saw a 'working group' convened to produce an 'interim' and a 'final' report outlining their recommendations for the form and content of the NCPE. For Evans and Penney (1995) the particular composition of the working group recruited to develop a curriculum for physical education signified a particular view of physical education and likely content for the NCPE. The working group was a symbolic representation of what physical education ought to look like from a government perspective, blurring boundaries between physical education and sport and reinforcing the view that physical education was virtually exclusively about sport and performance (Penney and Evans, 1999). Sport seemed empowered in the composition of the group, while other issues and interests, (including health) were marginalized and excluded. The group's membership could be seen as representative of what physical education should not be whilst seemingly reflecting the conservative governments 'cultural restorationalist' views on physical education and school sport.

In terms of the presence of discourses reflecting and promoting health in the physical education curriculum, the key issue in the group composition was the apparent absence of individuals or groups of individuals clearly representing health interests. For some, the absence of a 'strong health voice' in the working group suggested that 'health issues' were 'not considered to be a primary concern in the development of the NCPE' (Harris and Penney, 1997, p. 42). This lack of representation can be regarded as undermining the potential for issues of health to become central themes within the physical education curriculum and points to the fact that 'health' issues were not at the forefront of curriculum construction or contestation.

Penney and Evans (1999) suggest that within the scope of the remit of the working group there was capacity and potential for the pursuit of a variety of discourses in and of physical education, some of which would be in contrast to the seemingly narrow perspectives of the Conservative government. A report produced by the British Council for Physical Education (BCPE) provided key guidance for the working group. The BCPE detailed a vision of the NCPE endorsing the importance of a progressive educational discourse that marked the boundaries between sport and physical education and linked physical education with health goals (BCPE, 1990). Importantly for those advocates of a health focus in physical education, the BCPE report;

> ...accommodated both the 'new' and traditional discourses of health education and games teaching operating in the fields of physical education sport', but significantly did not cite games and sports as the defining feature of physical education and served to challenge the government's games centred 'restorationalist' view of school physical education.
>
> (Evans and Penney, 1995, p.3)

Penney and Evans (1999) identified how the interim report signalled the clear intentions of the working group to conceptualise and define physical education within a framework that would challenge established practice and central government agendas, and bring different interests, including health, to the foreground. However, in many respects the report could also be seen to also clearly reflect conservative interests and legitimate the long established dominance of discourses of sport. In particular the interim report identified 'areas of activity' as organising structures for physical education (DES/WO, 1991a). These areas would form an activity-based

structure for the curriculum comprising of games activities, dance forms, gymnastic activities, athletic activities, swimming and water based activities (DES/WO 1991a). According to Penney and Evans (1999) this activity-based structure was presented as 'natural' and non-contestable and 'may well have reflected a lack of desire on the part of the working group to 'redefine' the 'established' physical education in the United Kingdom' (p. 42). The group were perhaps all too aware that an 'alternative focus' for the NCPE was never going to be viable with a government driven by a desire to restore a 'traditional' focus in education.

In terms of the place and position of health, the interim report provided some encouraging signs for advocates of HRE. Although there was no distinct PoS proposed for HRE (see below) emphasis was given to the role of physical education in promoting physical development and participation in physical activity in the rationale for physical education as a subject (DES/WO, 1991a) and an entire section was devoted to HRE, physical education and health education (DES/WO, 1991a, p.62-63.). This section outlined established evidence demonstrating the role of participation in frequent and appropriate exercise in promoting health and well-being and detailed ways in which the proposed curriculum for physical education might be planned and delivered to promote these aspects of pupil development. Specifically it was proposed that;

> Health related exercise lessons share with all physical education lessons the general requirements that they be predominantly practical; provide positive and meaningful exercise experiences; provide opportunities for all pupils to engage in challenging and enjoyable physical experiences, including tasks which all children answer at their own level; acknowledgement and reward effort and improvement; respect pupils as individuals with different experiences, capabilities and preferences; involve the learner and encourage self-responsibility and independence; and stimulate interest in pursuing purposeful physical activities and encourage further participation beyond school. In addition there is the important message that everyone can succeed in exercise.
>
> In this way children may acquire an understanding of the relative intensity and physical demands of different activities; the contributions to health of a range of activities; and that participation, rather than achievement at a high level is the key to health. This kind of work can then reinforce the concepts and knowledge acquired in focussing on and reinforcing the contribution made by the activities across the areas in the programmes of study.
>
> (DES/WO, 1991a, p. 62)

Clearly, at this stage of the development there was the potential for issues of health to be afforded a certain status, albeit not entirely at the forefront of the NCPE text, which could result in clearer 'health messages' reaching teachers and pupils. The interim report proposed that, in addition to pupil learning taking place *across* the activity areas structure, it could also occur *within* the six different areas of activity through 'permeating themes'. These themes were identified as (i) health and safety education, (ii) personal and social education, (iii) sensory experience and aesthetic expression and appreciation, and (iv) equal opportunities (DES/WO, 1991a). For Harris and Penney (1997) whilst these themes were given recognition they;

> ...were not provided with the formal structure and timetable for 'implementation' that was detailed for the development and introduction of the core and foundation subjects...the themes were essentially integrated into other subjects rather than either having a clear place and identity of their own or being the defining feature of the subjects.
>
> (p. 41)

These themes were very specifically positioned in the text of the proposals for a NCPE and Penney and Evans (1999) contend that 'essentially they were framed in a subordinate relation to the areas of activity. With the attainment targets and programmes of study centring on the areas of activity rather than these themes' (p.42). Harris and Penney (1997) draw attention to the location of health issues in these provisional physical education curricula texts and suggest that;

> The interim and final reports attracted much criticism from the advocates of HRE who were concerned about the 'loss' of status signalled by the identification of HRE as a theme rather than a distinct area of PE and the consequent potential for it to be marginalized within an activity based and performance orientated PE curriculum.
>
> (p. 46-47)

Organisations associated with promoting health issues, such as the Health Education Authority (HEA) were also concerned about the 'loss' of status signalled by the identification of HRE as a theme rather than a distinct area within physical education. Commenting upon the NCPE proposals and HRE, Fox (1992) identified the major outcomes of HRE as encapsulating an exercise and fitness independence and recognised the importance and value of reinforcing health related concepts through other activity areas, yet strongly argued that these concepts 'will always remain incidental and superficial' unless afforded a distinct strand within physical

education curricula, more specifically, 'without a formal programme of study there is grave danger that exercise and fitness education will be given a lower priority at a time when it needs more help than the established areas' (p.11). Likewise, Cale (1996) expressed disappointment that 'HRE was not included as an activity in its own right and thus afforded the status and degree of emphasis given to the more traditional activities of the physical education curriculum' (p.9). Fox (1992) was further critical of such an approach of delivery for curricula health outcomes;

> The content is too important and complex to be delivered in piecemeal fashion as incidental to the other activities on the football field or the gymnasium. Reinforcement in this way is vitally important so that children can make the links between exercise concepts and sports, but real understanding will be lost if exercise education is not delivered in a formalised course.
>
> (p.9)

In August 1991 updated proposals for the NCPE were produced (DES/WO 1991b). These proposed that a focus for HRE should be included in the statutory 'end of key stage statements' (EKSS[3]) at all key stages. In addressing the progression of HRE and to ensure realistic yet challenging targets across the whole ability range the Health and Physical Activity project group suggested some amendments to these EKSS (Harris, Almond and McGeorge, 1991, see Appendix B). Specifically, the project group argued that the extent of the practical knowledge base was largely underestimated and called for a greater focus on maintaining and improving health as opposed to fitness for all pupils. Despite these suggestions the proposals were largely replicated in the statutory orders of 1992. The 'rationale for physical education' detailed within the proposals contained no clear reference of the contribution of exercise to health. Harris, Almond and McGeorge (1991) in their response to the proposals contended that a 'rationale for physical education must include reference to frequent and appropriate physical activity contributing to improved health and well-being, emphasising both physiological and psychological benefits' (p.1). No distinct PoS for HRE was suggested in the proposals. Arguably such positioning represented a potential danger for the importance of HRE to be overlooked and underestimated. In response, the Health and Physical Activity project group therefore advocated a more structured approach, with health being afforded a distinct PoS delivered in discrete units of work that would be

[3] EKSS represent the knowledge, skills and understanding which pupils of different abilities and maturities can be expected to achieve at the end of the key stage in question.

accompanied by permeation of the concepts through the activity areas (Harris, Almond and McGeorge, 1991). More specifically the project group proposed that:

> Much more explicit guidance is required for teachers and the essential knowledge base and practical experiences need to be clearly presented within a programme of study for Health-Related Exercise...Health-Related Exercise should be an activity area in its own right with its own clearly identifiable programme of study. The current activity areas represent the basic conventional model and do not acknowledge the emergence of popular lifetime health-promoting activities.
>
> (p.2)

Inherent within such statements are discourses other than those associated with traditional images of 'health' in physical education; where the contribution of HRF/E has been perceived as solely to do with improvements in physical fitness improvements specific to the various activity areas (and/or particular sports within them). Certainly the need for more 'pupil friendly' and holistic agendas for HRE were being flagged here. However, as we see below, the first statutory text for the NCPE served to afford issues of health minimal status and recognition in physical education.

Expressions of health in the NCPE: 1992 orders

For some, the introduction of the NCPE represented a reinforcement of the view of physical education emphasising the encouragement of active lifestyles and signalled 'a rise up the rankings' for HRE (Green, 1994, p. 28). For others, the lack of a clear PoS for HRE arguably served to confine issues of health to the curriculum 'sidelines'. Implicit in the NCPE (DES/WO, 1992) was an increased emphasis on a discourse of sport and performance that served to privilege certain activity areas (notably team games) over and above other areas, including those associated with health. Certainly, for Penney and Evans (1999) at this stage of NCPE construction the overriding and central concerns of government associated with principles of 'cultural restoration' were obvious and very apparent, and 'the structure and inherent bias of the NCPE mirrored that already established in physical education in England and Wales (p. 62).

A notable omission in the 1992 orders was a 'rationale' for physical education that included reference to the role of physical education in contributing to health and well-being, rather the 'rationale' for physical education focussed upon the development of

sporting performance. The orders did feature aspects of HRE in the 'general requirements' relating to PoS for all key stages. Specifically, it was stated that in physical education pupils should be taught; 'to be physically active; to engage in activities that involve the whole body, maintain flexibility and develop strength and endurance' (DES/WO, 1992, p. 3). Issues associated with health were also present in the EKSS (see Appendix A) and in the 'PoS general'; (see Appendix B). In these first statutory orders we saw the importance of discourses associated with short term gains in 'fitness', and lack of comparable recognition of discourses associated with longer term physical activity participation and of benefit to physical, social and emotional 'health'.

Meanwhile, health remained positioned as one of five cross-curricular themes in the curriculum as a whole. Although the theme of 'health education' and in particular 'the effects of exercise on health' were highlighted as 'most prominent' (DES/WO, 1992, G2), for some, this under representation was particularly disappointing;

> Although preparation for lifetime exercise is not the only goal of physical education, I believe it to be the singular greatest contribution that we can make to the quality of life of people. It should underpin our existence in the school curriculum and dominate the shape and content of what we teach and how we teach it.
>
> (Fox, 1992, p.8)

This position of health in the National Curriculum was mirrored in the NCPE specifically. HRE was not afforded the status as a distinct area of physical education. Instead it was positioned in relation to the activity areas, potentially underpinning and integrated into them. It was recommended that the 'six areas of activity will each make a contribution to physical wellbeing' (DES/WO, 1992, G2). Statements included in the setting out of cross-curricular matters in physical education clearly sought to privilege discourses associated with physical performance and fitness for improvement in sport and in many ways further affirmed historical 'scientific' discourses of the past. For example;

> In gymnastic activities and dance, for example, there will be opportunities for promoting knowledge of physical development in muscular strength and flexibility. Games, distance running and swimming have obvious implications for stamina building (cardio-respiratory fitness).
>
> (DES/WO, 1992, G2)

Harris and Penney (2000) contend that discourses of health and HRE were present but were not articulated or developed in any detail. Rather they were 'positioned amid (and seemingly in danger of lost among) other more familiar and established discourses of sport and performance' (p.251). In this way, leaving a HRE focus 'out in the cold' meant that important messages in relation to physical activity and health were in danger of being overshadowed or overlooked.

1995: Clarifying, cutting and revising the NCPE: redefining the position of HRE?

A revision and reduction of all statutory orders, including physical education was announced after less than a year of initial implementation. This was largely in response to the increasing unpopularity of the National Curriculum as a whole and dissent from the education system and schools about its unworkable and overloaded nature. Sir Ron Dearing (Chair of the Schools Curriculum and Assessment Authority, SCAA) was recruited to review existing curriculum orders and recommend to the government a revised and slimmed down curriculum for all subjects. It was not intended that the revision would involve major changes to the underpinning structure of the National Curriculum as a whole (Penney and Evans, 1999). Rather, Dearing and the established 'advisory groups' had to develop;

> A slimmed down statutory content for each subject, leaving the remainder of the material in the present curriculum Orders for the use at the discretion of the school. It will not involve the introduction of new material. Neither will significant changes be made to the structuring of material unless there is a clear need to do so.
>
> (Dearing, 1993, p. 35)

In the case of the NCPE, the overall aim was to 'clarify the essential knowledge, skills and understanding which should be taught whilst maintaining sufficient breadth and depth at each key stage' (SCAA, 1994, pii). Essentially for physical education this revision was concerned with the cutting of content from the programmes of study and specifically from the areas of activity.[4] Penney and Evans (1999) contend that

[4]At key stage 1, pragmatic concerns centring around teachers' dissatisfaction, teacher training, school physical resources, and time available for physical education directed the reduction of activity areas schools were required to include from five to three (Penney and Evans, 1999). Only the programme of study for games remained intact with no essential content removed (SCAA, 1994). At key stage 2 all activity areas remained but with reduced content, yet this process of 'pruning' was less so for games. To cut content at key stage 3 each activity area, with the exception of games, was split into 'half units'. Pupils were required to study games as a full unit (in each year of the KS), one other full unit and two half units from different activity areas, one of which must be gym or dance. Swimming was also reinstated as a distinct activity area. (SCAA, 1994). At key stage 4 games became a compulsory area of

embedded in this NCPE revision and the reductions that were subsequently made throughout each key stage, were central government desires to explicitly privilege particular discourses, notably competitive team games, and in parallel, to subordinate other discourses. Expressions of 'health' were set to continue to lack clarity and status.

The revision ultimately involved the development of 'Introductory paragraphs' at each key stage to establish the 'scope, character and objectives of physical education at each stage' (SCAA, 1994, p. ii). General requirements were 'amended and pruned' to only the essentials of the subject and renamed 'general PoS'. Existing PoS were restructured to comprise elements; 'general PoS' and 'key stage PoS' (SCAA, 1994, p. ii). In relation to health and HRE, the revision featured a significant structural change. Statements concerning the health-related aspects of physical education provision that had previously been evident in the activity specific PoS and in the general requirements, were amended and transferred to introductory paragraphs for each key stage (See Appendix B). Statements were placed in introductory paragraphs to show 'that they should permeate the areas of activity and need not be taught in isolation' (SCAA, 1994, p.ii).

In relation to specific curricula content, alterations were minimal. Concepts relating to preparing for and recovering from activity were transferred from key stage 2 to key stage 3 and aspects of 'personal hygiene' were placed in the general requirements. The new general requirements stated that the following requirements apply to the teaching of physical education across all key stages;

> To promote physical activity and health lifestyles pupils should be taught:
>
> a: To be physically active;
> b: To adopt the best possible posture and the appropriate use of the body;
> c: To engage in activities that develop cardiovascular health, flexibility, muscular strength and endurance;
> d: The increasing need for personal hygiene in relation to vigorous physical activity.
>
> (DFE/WO, 1995, p.2)

In identifying 'the type and range of performance that the majority of pupils should characteristically demonstrate by the end of each key stage, having been taught the

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activity to be experienced by pupils (SCAA, 1994). Implementation of the revised orders commenced in August 1995 for key stages 1 to 3 and from August 1996 for key stage 4.

relevant programme of study', HRE statements were also included within the attainment targets - End of Key Stage Descriptions (EKSD[5]). For example, at the end of key stage 2 pupils 'sustain energetic activity over appropriate periods of time, and demonstrate that they understand what is happening to their bodies during exercise' (DFE/WO, 1995,p.11). (EKSD for all key stages are shown in Appendix A). Once again, these developments reflected a continued expression of *particular* discourses of health and continued absence of others. Discourses associated with individual fitness and performance in activity areas were promoted over and above more holistic agendas of lifelong health and activity participation. This was especially notable at key stages 1, 2 and 3 where the importance of 'energetic' 'sustained' and 'vigorous' activity was emphasised. Ironically, opinions differed as to whether the revision represented an improved, or alternatively, further marginalized position for health in physical education. For Stratton (1995) the revision represented a 'derailing' of concepts associated with health and HRE. The revision served to demote HRE outcomes and banish HRE to 'sitting in sidings'. Stratton (1995) interpreted the 'repositioning' as a further 'sidelining' of HRE in statutory terms by the Department for Education where 'Statements in the introductory paragraphs are virtually outside the 'meat' of the content that physical educators may be inclined to deliver, and much of the content of the health related exercise in the national curriculum will be overlooked' (p. 22). The response of others was not quite so damning, and even optimistic about the implications of the potential for HRE now to be afforded a greater focus within physical education curricula. The changes were largely considered as placing health-related issues at the forefront of the text and providing a more explicit prompt for these concepts to be addressed in the design and implementation of the curriculum (Harris, 1998a; Harris and Penney, 2000). But despite the arguably positive nature of this inclusion, the explicit omission of any formal recognition in the revision for HRE or structure for its delivery, and the absence of any 're-write or updating' of health as a cross-curricular theme was both concerning and disappointing (Harris, 1998a). The long term 'security' and 'status' of HRE concepts within physical education remained very uncertain (Harris, 1998a). Harris and Penney (1997) questioned the extent to which these amendments and subtle changes would be reflected in teachers curriculum planning and practice. In the context of the existence of some previous 'discrete' units of HRE (or more

[5] EKSD replaced EKSS and 'describe the types and range of performance that the majority of pupils

commonly 'HRF', see previous discussion) in physical education, it was unclear what place would be accorded to HRE in practice and how would it, or indeed could it legitimately be positioned and delivered within the framework of the NCPE.

As teachers continued to implement the revised statutory orders for physical education it was announced the National Curriculum was to be subjected to yet a further review. Once again, there would be implications for the representation and likely expression of health in physical education. Below I pursue in greater detail the rationale for the review and the changes in curriculum structure and content that it gave rise to.

Health, HRE and Curriculum 2000: Progress or standing still?

The revised National Curriculum was circulated to schools during November 1999, implemented in September 2000 at key stages 1 to 3, and September 2001 at key stage 4. For some the most recent NCPE revision represented the opportunity to challenge established frameworks and deconstruct boundaries inherent in the curriculum, to raise questions about whose and what interests are being pursued and in doing so, to pursue alternative structures and 'futures' for physical education.

> The present revision can be seen as clearly positioning physical education at a cross roads, and presenting teachers and teacher trainers with a critical choice; to continue to move forwards in a familiar and comfortable direction, or to choose a distinctly different, challenging, potentially threatening, but also exciting and rewarding, direction of development as we approach the new millennium.
>
> (Penney, 1999a, p. 4)

For the Qualifications and Curriculum Authority (QCA), the intention was to limit curricula revisions and maintain 'stability' rather than undertake radical reform, in this way the review was regarded as 'evolutionary not revolutionary' (QCA, 1998, p. 10). The government made it very clear that the revision of the National Curriculum would not involve major change and the adoption of only a 'light touch' was desirable (Blunkett, 1999, cited in Penney, 1999b). Yet for Penney (1999b) within the context of physical education, it seems questionable whether a 'light touch' will

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should characteristically demonstrate by the end of the key stage, having been taught the relevant PoS.

address deep-rooted curricula and pedagogical issues. Specifically, the retention of an activity-orientated structure can be seen to continue to privilege ideological interests of sport and performance within physical education (Penney and Chandler, 2000).

'Stability' within the NCPE was retained through the continued identification of an organisational structure based around 'areas of activity' providing the framework for PoS, and curriculum planning within physical education. This reflected both the government's emphasis on minimal change and affirmed the longstanding pattern of curricula organisation in physical education. However, in parallel with this maintenance of 'stability' there were some distinctly new characteristics evident within official texts. These included a statement of the 'distinctive contribution' of physical education to the curriculum, the identification of 'core aspects of learning' to be pursued throughout the programmes of study, and the establishment of an eight level scale and level descriptors used to assess pupil attainment. These developments possessed the potential to impact upon teaching and learning of health issues within physical education.

Physical educations distinctive contribution to the curriculum and its core knowledge, skills and understanding

In introducing the requirements for physical education the importance of the subject within school curricula is defined;

> Physical education develops pupils' physical competence and confidence, and their ability to use these to perform in a range of activities. It promotes physical skilfulness, physical development and a knowledge of the body in action. Physical education provides opportunities for pupils to be creative, competitive and to face up to different challenges as individuals and in groups and teams. It promotes positive attitudes towards active and healthy lifestyles. Pupils learn how to think in different ways to suit a wide variety of creative, competitive and challenging activities. They learn how to plan, perform and evaluate actions, ideas and performances to improve their quality and effectiveness. Through this process pupils discover their aptitudes, abilities and preferences and make choices about how to get involved in lifelong physical activity.
>
> (DfEE/QCA, 1999, p. 15)

As implied in previous NCPE texts, there is a continuing emphasis on the longstanding physical education and health association, but also the continued

centrality of discourses of sport and performance, and notable omission of socio-critical interests.

The review also featured a move towards clarifying the knowledge, skills and understanding that must be taught, and in which pupils make progress through the National Curriculum. Four 'core strands of learning' are identified at each key stage that form the threads of the subject and the basis of the content for each activity area and 'it is intended that they are read and used together as they are inter-related and increasingly dependant upon each other' (Casbon, 1999, p. 7). These four aspects of learning are defined as;

- Acquiring and developing skills
- Selecting and applying skills, tactics and compositional ideas
- Evaluating and improving
- Knowledge and understanding of fitness and health

(DfEE/QCA, 1999, p. 6)

In some respects the identification of 'knowledge and understanding of fitness and health' can be read as a prompt for teachers to adopt an integrated approach that addresses aspects of 'fitness and health' in the context of units of work associated with a specific activity area (Penney and Yelling, 2001). However, it is also notable that terminology used is a reversal of terminology suggested in previous NCPE consultation materials, (QCA, 1999a) where the third strand was named 'health and fitness'. Coupled with limited consideration of calls from the profession requesting that the fourth strand be renamed 'knowledge and understanding of health-related exercise' (PEAUK, 1999, p.5), the final NCPE text arguably reflects continued privileging of particular agendas and subordination of others. Furthermore, there is a danger inherent in this 'aspect' approach that discourses of health and physical activity remain subordinated among, and lost amidst, more established discourses within physical education. In their response to the NCPE proposals the PEA UK advocated that teachers' should be given the flexibility to deliver a knowledge and understanding of fitness and health by permeation, discrete modules or a combination of both (PEAUK, 1999).

Interestingly, during the review consultation the ways in which HRE might be more clearly incorporated in the NCPE order was identified as a specific area in need of

discussion (Harrison, 1998). Ultimately it seems that discussion was constrained and in important respects the position unchanged. The extent to which the most recent NCPE orders will be viewed by teachers either as a prompt for fundamental change encouraging them to adopt alternative approaches (and new discourses) to 'health' issues within physical education or as reaffirming existing and established discourses is a matter of uncertainty. However, in looking to possible and likely responses from teachers, we need to consider 'who speaks when, where and with what authority' and specifically recognise the 'weight' of comments from Her Majesty's Inspectorate (HMI) and the Office for Standards in Education (OFSTED). Notably, HMI Gordon Clay considers that an effective curriculum is one that meets the requirements of the National Curriculum in full, and where this is the case, references to knowledge and understanding required to promote and maintain good health will be threaded through the areas of activity (Clay, 1999). In the view of HMI, 'Developing the necessary knowledge and understanding of the body and of maintaining a healthy lifestyle **underpins** all the work in PE and is best achieved in the context of the areas of activity, and not as short, discrete units of work! (Clay, 1999, p. 34, emphasis added).

The way in which the aspect 'knowledge and understanding of fitness and health' has been articulated in each key stage is detailed in Appendix B. Within the text there remains an emphasis on individual fitness for specific activities, but there is also reference to the importance of physical activity for health. However, the visibility and further reinforcement of discourses of fitness and elite performance at key stage 4 with specific emphasis placed upon 'training', 'fitness and performance' is very strong. For Harris and Penney (2000), whilst the identification 'fitness and health' as an aspect is encouraging at face value, the ways in which it will be developed in practice remains an issue that lacks clarity and is a matter of concern.

Penney (1999b) contends that the first three aspects focus explicitly on the development of performance, and the fourth is concerned to address an additional aspect of learning that can be seen as potentially relevant to the performance agenda. This privileging of a sport and performance agenda is also apparent in other texts issued to supplement the implementation of the new NCPE. In particular, 'Terminology in Physical Education' (QCA, 1999b) emphasises concepts of fitness for participation in sports over and above a focus on a more holistic approach to

health. How different types of fitness impact on activities and affect performance, where fitness for purpose associated with sporting activities, and where areas of fitness are focussed around physical aspects are all addressed (QCA, 1999b, p. 7). Here we can see similarities with historical functionalist discourses of health in physical education. In the 'Terminology in Physical Education' (QCA, 1999b) document fitness is defined as 'sufficient bodily function to carry out specific tasks safely' (p. 7), whilst areas of fitness are described as strength, suppleness, stamina, skill and speed. 'Fitness for purpose' is then described as;

> Sufficient bodily capacity and function to carry out a task efficiently without strain;
> Strong enough to prop a scrum;
> Strong enough to control or 'spot' a landing when jumping off apparatus;
> Enough stamina to maintain rapid pace for more than 30 seconds.
>
> (QCA, 1999b, p. 7)

The 'Terminology' document was also notable in giving arguably limited commentaries or pointers for the development of 'fitness and health' aspect as compared to others. The outlines of PoS for the six activity areas refer directly to the first three aspects of 'acquiring and developing skills', 'selecting and applying' and 'evaluating and improving performance', but give no comparable guidance for the 'knowledge and understanding of fitness and health' aspect. Penney (2001) calls into question this absence and contends that it may lead teachers to doubt the legitimacy of focused HRE units.

Overall, the similarity of the first three aspects to the established concepts of 'planning, performing and evaluating' that featured in previous NCPE texts, has contributed to the feeling of 'limited change' in the context of this most recent revision. Penney (2001) suggests that 'it is not uncommon for the aspects to have been taken to equate to the established and familiar framework of planning, performing and evaluating...plus health' (p. 97). Issues of health therefore seem destined to limited and varied attention, and once again it remains unclear if units of HRE could, and/or should be included in physical education curricula.

Physical education: recognising the value of what learning?

A further feature of the revised NCPE are the newly devised level descriptors that provide a profile of progression in relation to the knowledge, skills and understanding in physical education. Each of the descriptors (eight, plus one for 'exceptional performance') identify of 'the types and range of performance that pupils working at that level should characteristically demonstrate' (DfEE/QCA, 1999, p. 42).

For Casbon (1999) the eight level scale details the realisation of core strands across and through activity areas in eight stages. It is 'designed to lead to greater clarity and consistency and to enable the national curriculum in PE to be taught with a more coherent understanding of its requirements' (Casbon, 1999, p. 7). Penney (1999b) agrees that these descriptions represent a 'key point of reference for teachers shaping (or framing) the particular focus of teaching and learning in physical education' (p. 9). However, Penney (2001) has also reported that although teachers welcome the development of descriptors in their current form, they are perceived as 'lacking clarity and failing to provide a sound basis upon which to articulate pupils' learning' (p.107). Furthermore, Penney (2001) contends that the level descriptors provide only limited coverage of the learning that physical education seeks to promote. She particularly highlights that the statements lack a distinct focus on social dimensions of learning. In relation to issues of health the relevant aspects of the level descriptors are detailed in Appendix B. All too apparent in this newly created characteristic of the NCPE, and arguably therefore a considerable influence on what constitutes a future vision of physical education and a physically educated pupil, is the continued explicit privileging of discourses of sport, performance and 'fitness' over and above other more holistically based discourses. A 'lifelong' health focus is arguably subsumed within the dominance of aspects of applying skills and techniques and improving performance. Discourses of health associated with performance in sport (or 'activities') are visible over and above holistic and social discourses. For example, to meet the stated attainment target associated with 'Level 5' pupils should be able to 'explain how the body reacts during different types of exercise and warm up and cool down in ways that suit the activity' (DfEE/QCA, 1999, p. 42). Also, despite reservations previously voiced (see Evans, 1989; Sparkes, 1989a) discourses of individualism remain central concerns in aspects of the attainment targets related to

health. At Levels 7 and 8 pupils are required to plan and evaluate personal exercise programmes. Although these notions are certainly important in contributing to the development of an active physically educated young person, social agendas also warrant consideration (see Laker, 2000).

In looking closely at the descriptors, it is also notable that the element associated with 'fitness and health' is located at the end of each statement, seemingly positioned as a superficial 'tag on'. Once again, we see health issues positioned subordinate to, and in danger of being overlooked by, more established agendas. In this regard, Penney (1999b) contends that the proposals are;

> ...(re-)presenting minimal change in the curricula of physical education, and specifically, legitimating and supporting the retention of an activity and performance focus, and doing little to prompt the development of a wider range of teaching and learning in physical education.
>
> (p. 10)

Diversity in implementation of the revised NCPE is inevitable and the status, expression and location of issues of health within physical education teachers 'texts' is set to remain a matter of contestation. Amidst these developments, contestation and implementation, there has been an important consistency, with a case for the expression of health and physical activity within physical education repeatedly being made, and a place and position for health justified. However, the precise nature of the 'the case' has varied (for example, is health in physical education about preventing illness, the promotion of long term health, or a direct impact on children's fitness?). Below I pursue in greater detail the ways in which the NCPE and specifically, its commentary relating to health and HRE, have been interpreted and put into practice in schools.

Marginal in Policy: What prospects in practice?

Harris (1998a) has discussed ways in which contestation surrounding the implementation and delivery of HRE has continued to be a prominent feature of debates that have addressed the relationship between the NCPE, health and the content, organisation and credibility of HRE. Harris (2000) identifies four different approaches to the delivery of HRE, namely; permeation (where HRE is taught

through the activity areas), focused/discrete (teaching HRE through specific focussed units of work), topic (teaching HRE in a series of lessons following a topic or a theme both in physical education and in the classroom) and combined (any combination of permeation, focused and topic approaches). Harris (1998a) distinguishes between those who favour a 'discrete' form of HRE delivery (for example, BAALPE), others who prefer delivery within the context of the activity area (Clay, 1999) and those who advocate an approach involving a combination of models (Harris and Almond, 1994). The interim report (DES/WO, 1991a) included statements offering some guidance on delivery of HRE within the NCPE. More specifically, the report prompted teachers to deliver HRE in various ways;

> Health related exercise may be delivered either through structured programmes of exercise with a health related practical knowledge base, or by applying the same knowledge to physical education activities.
>
> (DES/WO, 1991a, B.11, p. 62)

The use of a permeation approach to highlight and reinforce HRE concepts was arguably privileged in the report. It was suggested that;

> The broadly based, flexible and inclusive approach to the programmes of study will allow health related exercise to be promoted by all areas of activity in physical education.
>
> (DES/WO, 1991a, B.13, p.62)

> It is important that health related exercise concepts be reinforced in the areas of activity. Such reinforcement needs to be thoroughly planned in order to highlight clearly the messages, otherwise they will simply be lost.
>
> (DES/WO, 1991a, B.17, p.62)

> Each of the areas of activity can contribute to knowledge about the effects of exercise.
>
> (DES/WO, 1991a, B.18, p.62)

> Each area of activity lends itself to the reinforcement of certain health related exercise concepts.
>
> (DES/WO, 1991a, B.13, p.62)

For McGeorge and Harris (1992) the interim report was welcomed in that it signalled some direction for teachers in the ways that HRE might be implemented through three potential routes; 'it is possible to highlight these concepts in any activity area and reinforce in another and on some occasions it is possible to consider a structured programme of exercise' (p. 3). However, as we have seen, the first NCPE (DES/WO, 1992) omitted to include such guidance, leaving teachers free to interpret NCPE HRE statements and free to decide upon the most appropriate mode of delivery. Inherent in this freedom was the scope for notable slippage (see Chapter 1) in teachers' interpretations and implementations of HRE.

Harris (1998a) suggests that, for numerous reasons, 'permeation' of health issues has failed to occur within the NCPE and cites McKenzie (1994) who has argued that teachers' use of a discrete approach may reflect their lack of faith in a permeated approach. However, whether discrete units of HRE could feature in a NCPE and/or whether HRE concepts should be addressed via integration into activity based units, has never been clarified in official texts. By implication the NCPE structure pointed towards the latter, but seemingly has not precluded the former. There has been clear scope for different readings and positioning of discourses differently and a lack of clarity in relation to which type of model/s for delivery is preferred (Harris, 1994; Oxley, 1994). In this respect it is important to acknowledge 'whose preferences matter'. Certainly, readings of and responses to HRE need to be set and understood within wider school and educational contexts and in relation to other discourses of accountability and inspection. In particular, the voices of HMI and OFSTED were always destined to be accorded high status and heard above the voices of others. Notably, Oxley (1994), representing HMI contends that;

> Some regard HRE as a subject or activity (which is contrary to the statutory requirements), some teach the activity because it is easy to organise, some teach it because they have misread the Physical Education document and some include HRE in most sessions and link it to the statutory units of work.
>
> (p. 39)

Furthermore, he has commented 'HRE is 'essential work but must not be taught *at the expense of the statutory requirements in physical education*' (ibid, p.39, emphasis added). Oxley (and thus HMI) has distinguished HRE from statutory requirements and implied that HRE has a very limited place in those requirements.

In pursuing how health and HRE concepts might be effectively communicated to pupils, Harris and Cale (1998) have suggested that whilst the profession has welcomed the potential of physical education to contribute to health within the NCPE, conceptual confusion and wide variation still prevails in relation to concepts of 'health' and its status and expression within physical education. Harris's research calls into question the extent to which the implementation of the NCPE and subsequent revisions to the orders have changed the varied pattern of provision (Harris, 1995, 1997a, 1997b, 1998a, 1998b). She contends that although most schools in England are delivering some form of HRE the extent and type of delivery varies tremendously between schools and is characterised by unstructured programmes of delivery that focus on stamina, suppleness, strength, flexibility and fitness testing. This clearly has many similarities with the pattern of provision before the development of a NCPE. Harris and Penney (1997) claim, 'with some certainty' that varied approaches to delivery still characterise HRE in physical education. Harris (1998a) adds that 'physical education programmes rarely feature a committed, comprehensive, and coherent approach to health issues, and thus physical education is not currently the 'picture of health' that it could or should be' (p.110). In detailing the findings of surveys sent to secondary schools evaluating the implementation of HRE in the NCPE she explains that;

> Grass-roots support for a specific health focus in PE seems to be strong, with more than half of PE heads of departments stating that they would have preferred that HRE were placed within it own activity area, especially at KS4. Furthermore, only a minority of PE heads of department considered that HRE could be delivered through the activity areas alone at KS3 (less than a third) and at KS4 (less than a fifth). The reality was that as many as two-thirds of secondary schools were teaching HRE in focussed units either at KS3 or KS4 or both, often in combination with teaching HRE through the PE activity areas. While over 80 per cent of secondary schools were teaching at least some HRE through the PE activity areas, less than 10 per cent used this as the sole method for delivering HRE. However, only a third of PE heads of departments described the overall teaching of HRE as structured, particularly that delivered through the PE activity areas.
>
> (Harris, 1997b, p.108)

Harris (1998a) suggests that the prominence of vigorous activities and testing procedures exemplifies a 'fitness' orientation to much curricula health-related exercise delivery and she attributes this to the fact that the delivery of aspects of HRE has essentially been an additional component within physical education

programmes that are dominated by 'traditional' games and discourses of performance. She reflects that:

> Discrete units of HRE 'protect' the activity areas allowing them to be left 'untouched' or only minimally affected by the development of HRE. This may account for HRE being approached as a 'tagged on' addition to, rather than an integrated element of, the physical education curriculum. Thus, rather than the central rationale or focus point for PE, HRE has been essentially incorporated as an additional component within 'traditional' games dominated and performance-orientated PE programmes.
>
> (Harris, 1998a, p. 107)

A strongly classified physical education curriculum (see Chapter 1) is thus reinforced through the delivery of health issues in a distinct and separate manner. In many ways this is hardly surprising given the higher status that 'official' texts and from HMI afforded to discourses associated with sport and performance.

Stratton (1995) has also reflected that;

> Ultimately, within the 'fat free' physical education curriculum, (SCAA, 1994), many of the traditional activities such as games and gymnastics, are placed first in importance and health related exercise seems to come way down the line, if its gets onto the line at all. Inevitably, health related exercise is delivered in an ad hoc manner, and more often than not, in the puddle of the wet weather lesson. It's hockey, it's wet, it's got to be the NCF 20m shuttle run (bleep) test!!
>
> (p. 23)

Recognising the need to be proactive in seeking progress, Almond and Harris (1997) stressed that 'teachers need guidance, support and encouragement to move beyond their current practices and to reach for higher levels' (p.26). Subsequently, Harris was instrumental in establishing a working group to review and make recommendations for the teaching of HRE in primary and secondary physical education (Harris, 1998a). The aim was to produce guidance materials for teachers in primary and secondary schools which would positively influence the place and provision of HRE in the NCPE, and in particular support the development of a 'coherent approach that avoids the teaching of isolated concepts which remain detached and disconnected from learning experiences within the PE activity areas, and those beyond the PE and school curricula' (Harris, 1998a, p. 111). Now published,

> The guidance material focuses on physical activity as a desirable health-related behaviour and assists teachers in planning, delivering and evaluating a structured, coherent and comprehensive health-related exercise programme that helps young people value the benefit from an active lifestyle.
>
> (Harris, 2000, p. viii)

The materials were undoubtedly timely, and were designed to be consistent with the structure, requirements and terminology introduced with the latest version of the NCPE. Their impact remains to be seen.

## Conclusion

The above commentary has identified health as highly contested as an 'issue' in physical education policy and practice. Furthermore, it has shown health to be marginalized both in the NCPE and potentially in practice in many schools. Certainly, issues of health and HRE are destined to be developed differently in different schools. As Harris and Penney (1997) have stressed, the process of implementing (and making) policy, in this instance the NCPE, is ongoing, and at least to a certain extent;

> The future of PE remains in the hands of those charged with the interpretation and implementation of the policies. It is therefore up to PE teachers and teacher trainers in England and Wales to take a critical stance in their readings of the government texts and the evaluation of their own practice if we are to see any move towards greater equity and equality in PE.
>
> (Harris and Penney, 1997, p. 52)

In this review of literature, I have endeavoured to promote such a stance. My commentary has not been neutral, but instead, sought to openly question the status and position of various discourses in and of physical education. Despite ongoing tensions in relation to curricula expressions of health, a clearer picture of, and rationale for, a need for the promotion of health and physical activity in children and young people is emerging. Strong calls that physical education should explicitly pursue 'health issues' are still being expressed, alongside continued claims that physical education does address these issues (See for example, DfEE/WO, 1999; PEA UK 1998, and Chapter 10). Whether or not these claims are justified, and indeed whether interests in health and physical activity can be promoted to a position of

prominence within the established focus and framework of physical education were the challenges that my research sought to engage with. In the next chapter I detail the research process and methods that my research employed.

# Chapter 3

# Overview of research methods and design

## Overview of research methods and design

### Progressive and phased research

This chapter outlines key paradigmatic and methodological issues and choices that have underpinned and informed my research. Critically, it is important to note that my research was guided by a commitment to a progressive approach to the investigation of physical activity in physical education and the ways in which physical education can contribute to the fulfilment of aims and recommendations relating to physical activity while simultaneously addressing the many other pedagogical aims of the subject. Essentially, the research comprised of a series of 'phases' each of which was associated with specific research questions that demanded the use of differing methods. An important characteristic of the research process and design was the linkage between the questions pursued at different points in the research. There was therefore a crucial sequential element to the research, with the data arising from one phase informing and guiding the development of subsequent phases, including the research questions to be pursued, the selection of research sites and samples and the choice of methods. In relation to each phase the particular questions and issues to be pursued demanded the use of specific methods appropriate for, and capable of, addressing these questions.

The various phases of data collection that comprised the research process are shown in Figure 1 (see below). This framework reflects the chronological format to the research process and represents a research timetable. The focus of this thesis, and the different chapters within it, match the chronological progression of the research. The final 'case study' phase represented the culmination of previous phases of study in terms of both depth of inquiry and changes in my own assumptions and beliefs relating to research. The phased approach shown is somewhat simplistic and should be viewed within the complex context of the research process as a whole. Implicit within this interpretation is that each of the 'phases' of the research process are separate but are seen as progressive and developmental. Each of the phases served to address particular questions but threads associated with the overriding and central themes of the work (specifically, examination of pedagogical discourses of physical activity and health in teachers' and official 'texts' and measurement of physical activity levels in physical education contexts) were pursued throughout the duration of study. These agendas served to implicitly link the phases and were progressively explored via the phases. Inherent in both the design and the

implementation of each of the phases was a degree of flexibility and in relation to the focus and potential future direction of the research. In the discussion below the various phases are used as a framework to describe the research design, key research issues and methods used. These issues are subsequently discussed in further detail in chapters 4, 5, 6, 7, 8 and 9 that respectively relate to particular phases of inquiry.

Figure 1: The phased progression and the progression of the phases

**Phase 1: Physically active young people? Physically active physical education?**

Key Issues:

How physically active are young people in general and in physical education?

What methods have been used for measuring physical activity?

⇒ Identification of key groups and contexts for preliminary study.

⇒ Identification of methods for measuring physical activity in physical education

Girls and physical activity levels in physical education

Key Issues:

What is the direct contribution made by physical education lessons (invasion games) to girls' physical activity levels?

⇒ Identification of potential research sites and samples

⇒ Negotiation of access. Pilot study of protocol and methodology

⇒ Measurement of physical activity levels in games lessons

⇒ Examination and interpretation of physical activity levels

**Phase 2 Girls' physical activity in physical education – Implications for pedagogy**

Key Issues:

What are the pedagogical contexts in which particular types of physical activity are included in physical education?

What is the extent of the contribution made by different types of lesson and particular elements of physical education lessons to physical activity levels?

What are the implications of the findings in relation to curricula design, lesson structure and teaching approaches in physical education?

⇒ 'Case study' descriptive analysis of girls' activity in games lessons and associated pedagogical issues arising

⇒ Addressing the implications of, and strategies for, 'direct' physical activity inclusion in curricula physical education.

⇒Exploration of strategies for physical activity inclusion

**Phase 3: Development of an approach for monitoring and controlling physical activity**

Key Issues:

What approaches for self-monitoring of physical activity in children are available?

What is the effectiveness of a newly developed effort rating scale for the self-evaluation of children's physical activity?

⇒ Effort rating scale development and construction

⇒ Selection of school sites and samples

⇒ Exploration of children's physical activity responses and their ability to rate and regulate physical activity levels during structured exercise.

**Phase 4: Case study investigation of physical activity in selected schools: Pursuing the scope for slippage.**

Key Issues:

Can children rate and regulate particular levels of physical activity in the context of physical education?

What are the discourses privileged and marginalized by physical education in these physical education contexts?

What are the tensions and contractions in terms of physical activity in physical education and in what ways can particular discourses evident in physical education be challenged and contested?

To what extent can the scope for slippage in the NCPE be creatively utilised to seek to privilege alternative discourses in physical education?

⇒ Identification of research sites and samples

⇒ Negotiating access. Pilot Study: methods and procedures

⇒ Exploring and evaluating effort perception and physical activity in physical education.

⇒ Exploring wider issues of curricula physical activity and parallel pedagogical implications.

⇒ Exploring 'key figures' and pupils perceptions of perceptions of effort perception, physical education and physical activity in schools.

The 'multi-disciplinary' nature of my work nature meant that I came to confront and reflect upon different approaches to research, and differing views regarding the relationships between research and knowledge and the nature of knowing. In the light of these issues and the methodological dilemmas that were posed throughout the research process some exploration of contrasting perspectives in relation to paradigmatic stances, the context of research in physical education and within my research specifically, is appropriate. This chapter comprises several sections. The first considers the nature and assumptions of 'scientific' and 'interpretive' paradigms and the ways in which these have been reflected the research undertaken. Attention focuses upon debates in relation to paradigmatic stance and choice of specific methods, and in particular the commensurability of combining forms of qualitative and quantitative inquiry. Subsequently, I outline the research process and the progressively phased strategy of data collection utilised in this study. I then identify and briefly discuss the key research questions and choice of methods associated with each phase, the data analysis procedures adopted and ethical considerations arising within each phase. Finally, I discuss the way in which I approached the writing of this thesis.

## Approaching inquiry: A paradigm of choices.

Paradigms are positional belief systems, conceptions of problems, methods and explanations within research that represent particular lenses for seeing the world and frame the different ways in which sense of these visions and interpretations are made.

The notion of research 'paradigm' was identified by Kuhn (1970) as a 'set of recurrent and quasi-standard illustrations of various theories in their conceptual, observational, and instrumental applications' (p. 41). For Patton (1990) a 'paradigm' represents a worldview, a general perspective, a way of breaking down the complexity of the real world, where views and beliefs are deeply embedded in the socialisation of adherents and practitioners. Creswell (1994) suggests that paradigms encompass both theories and methods in relation to how science should be conducted, and what constitutes legitimate problems, solutions, and criteria of 'proof'.

Longstanding epistemological debate has centred upon the most appropriate way to conduct research in relation to the relative value of fundamentally different and competing inquiry paradigms. The differing assumptions and standpoints of the paradigms have been well documented, largely in dichotomous terms (Cresswell, 1994; Patton, 1990). The 'stances' have been variously termed positivist, scientific or logical positivism, using quantitative methods to test hypothetical-deductive generalisations, and naturalistic, interpretive or phenomenological inquiry that uses qualitative approaches to understand inductively and holistically experiences in context specific settings (Patton, 1990). The interpretive paradigm emerged forcefully in the twentieth century as a critical reaction to increasing dissatisfaction with and questioning of the appropriateness of the traditional 'scientific model' of the natural sciences for research in the social sciences. Although often portrayed in somewhat simplistic and dichotomous terms, it is important to recognise that 'paradigms are not homogenous or monolithic and that there are many contrasting traditions contained within any one particular paradigm, that is, there is internal diversity within paradigms' (Sparkes, 1992, p.17). For example, within an interpretive approach to inquiry a number of alternative paradigms have been identified that structure qualitative research, including post positivist, constructivist-interpretive, critical, and feminist-post structural (Denzin and Lincoln, 2000). Throughout the discussion below I associate the terms 'scientific' and 'interpretive' primarily with quantitative and qualitative approaches respectively. However, in doing so I am not exclusively associating qualitative and quantitative methods with a particular paradigmatic stance. I acknowledge, (and this research has reflected) the scope, and indeed the recent calls (see Gorad, 2002) for both qualitative and quantitative methods to feature in research associated with a particular paradigm, and for research associated with contrasting paradigms to variously utilise these methods.

A paradigmatic focus for this research

Throughout the various phases of my research I sought to adopt a critical and reflective self-awareness regarding paradigmatic assumptions. The research represents a multi-disciplinary study of the phenomena of interest, (namely physical activity in physical education), which has transcended paradigmatic boundaries. I have been concerned to engage in inter-paradigmatic dialogue, and see this as having added depth and breadth to the research. It is important to appreciate that the research presented featured an 'evolving' approach to inquiry that drew from various paradigm perspectives as my own awareness, understanding, and appreciation of different paradigmatic assumptions and concerns, and the 'value' I placed on them in terms of what constitutes 'knowledge' necessarily developed and progressed throughout the research process.

Life history(ies), disciplinary traditions and paradigms in research

For Smith (1992) the crucial feature of paradigm subscription revolves around the complex webs of background knowledge and the philosophical commitments that researchers bring with them to research. Sparkes (1992) contends that the values and assumptions that researchers adopt regarding the nature of the research process are a product of their life history, and therefore 'the individual must not only learn the content of the field but also a particular way of seeing the world that eventually becomes not only unquestioned but unquestionable' (p. 12). In these terms, my own thoughts and ideas in relation to what constituted 'valued' and 'good' research were largely constructed as a result of my own 'life history'. In the main, this history was characterised by exposure to the assumptions and underpinnings of the scientific paradigm and quantitative methods. Bain (1989) has recognised the dominance of an 'orthodox' science discourse and marginalization of others in education and training and in departments of physical education and sports science, and has suggested that students receive minimal or no exposure to alternative (qualitative) approaches of inquiry that focus upon understandings of meaning of human behaviour with reference to social contexts. Similarly, Tinning (1997) has argued that professional practice in human movement is limited by the discourses that underpin these training courses for future professionals. In this respect, I recognised the ways in which my own education and training was dominated by science-based, performance-orientated discourses in which the programmes followed often privileged discourses of the 'natural' sciences. This development of my knowledge and

understanding of how to approach research served to inform and frame my initial research agenda, including the questions that I was concerned to address and the methods that I looked to utilise to address them. My initial preconceptions and understanding of research in physical education reflected a 'sports performance' agenda that privileged scientific empiricism (Tinning, 1997). However, as will become apparent my interests in and understandings of research have been extended in and via this study. The 'emergent' direction of the research 'as a whole' signifies my growing commitment to 'alternative agendas' and an interpretive approach to research in physical education.

Towards an interpretive inquiry

Throughout the thesis there is thus a progressive emphasis upon an emerging interpretive approach to research. My evolving 'paradigmatic awareness' is reflected in the type and nature of research questions and issues addressed and the use of particular methods to address them. Data was collected and analysed using a 'multiple method' approach that utilised both quantitative and qualitative tools and embraced assumptions drawn from scientific and interpretive inquiry at separate and exclusive points in the research process. As the research progressed an increasingly important issue (then informing the data interpretation and agendas for further development of the research) was my commitment to pedagogical matters being the main focus of the study. My use of 'empirical' research in the early stages of my work can now be seen as for a specific purpose, in relation to this interest. The 'scientific' stance is therefore justified within the boundaries of the phases of the research in which it featured and furthermore, was appropriate. Within the research specific research questions were thus explored and made sense of within the frameworks of particular perspectives. With the various phases reflecting particular epistemological frameworks, I attempted to remain faithful to the particular paradigmatic assumptions associated with these frameworks. I share Sparkes' (1989b) view that the research should be judged and interpreted within the particular context of the relevant paradigm. This work, that involves viewing different phases from different viewpoints and through different 'lenses', thus demands a closer look at the research 'issues' associated with particular paradigms (see below). However, while the distinctions between phases were important, so are the interests and concerns that link them. In my view the nature and complexity of my research interests was such that progressive and multi-disciplinary research was necessary, albeit somewhat difficult.

Paradigm doctrine and assumptions

For Sparkes (1992) the association of particular paradigms with 'belief systems' is based around a set of assumptions embracing ontological, epistemological and methodological dimensions that cluster together and provide coherence within the frameworks of the respective approaches. Ontological assumptions revolve around questions regarding the construction of reality and what is 'real'. From an interpretive perspective reality is constructed by the individuals involved in the research process. This 'nominalist' position holds that reality is dependent upon the perceptions of the individual and that no single 'objective' reality exists, but multiple constructed realities. For interpretivists these multiple realities are shaped and constructed by the mind and there can be no separation of mind and object (Sparkes, 1992). In contrast a 'realist' approach, associated with the 'scientific' position, contends that phenomena of study exist as empirical entities and have an independent and 'objective' reality and that this reality is observable and measurable using specific tools and instruments. Considering this dichotomy, Burrell and Morgan (1979) point out how researchers are faced with the ontological question of;

> ...whether the 'reality' to be investigated is external to the individual – imposing itself on individual consciousness from without–or the product of individual consciousness; whether 'reality' is of an 'objective' nature, or the product of an individual cognition; whether 'reality' is a given 'out there' in the world, or the product of one's mind.
>
> (p.1)

Linked to these ontological issues are assumptions of an epistemological kind that refer to questions of knowing and the theory and nature of knowledge (Sparkes, 1992). Burrell and Morgan (1979) distinguish between knowledge construction or epistemology from a scientific stance, as something that can be acquired and is identifiable as being hard, real or capable of being transmitted in tangible form, whereas from an interpretive stance knowledge is softer, more subjective and based on experience and insight of a unique and personal nature. For Bryman (1988) the 'scientific' approach (positivism) is broadly characterised through an underpinning by empiricism and the belief that only observable phenomenon can be valid as knowledge, a methodological naturalism which entails the belief that that the procedures of the natural sciences are appropriate for the social sciences, and that scientific knowledge can only be obtained through the gathering of verified facts (inductivism). Furthermore, for positivists it is theories that provide the backdrop to empirical research and hypotheses are derived from them, (deductivism) and

the validity of knowledge is undermined if objectivity is not ensured. In contrast, interpretivists regard knowledge as the outcome or consequence of human activity, a human construction, which means it can never be certifiable as ultimately true but rather is problematic and ever changing (Sparkes, 1992). From within this paradigmatic orientation a subjectivist epistemology is assumed where the knower and respondent co-create understanding. This central assumption is implicitly related to the concept of phenomenology and the belief that 'we need to consider human beings' subjective interpretations, their perceptions of the world (their 'life-worlds') as our starting point in understanding social phenomena' (Ernest, 1994, p.25).

For the research presented in this thesis it is important to identify the nature of inquiry in relation to these issues. Specifically, the research was driven by an overriding concern to address the social world and particular social issues and phenomena associated with physical activity and teaching and learning in physical education, whilst at the same time, seeking to utilise findings and knowledge derived from 'natural science' in that endeavour. I considered it both necessary and appropriate to address issues of physical activity in physical education through knowledge generated via, and methods utilised from both objective and subjective approaches to inquiry (for example, through objective measures of activity and behaviour, through observation and talking to teachers and pupils).

The researcher and 'researched'.

Epistemological assumptions are also relevant in considering relationships between the researcher and the researched. Advocates of a scientific approach aspire to 'dualism', a separation of mind and world, where research seeks to attain a detached objective view of the world from a vantage point outside of it rather than from a place within it (Sparkes, 1992). Thus, the positivist seeks to maintain a distant and 'independent' position removed from the phenomena under study and makes attempts to control for and illuminate 'researcher bias'. In contrast, the interpretive researcher interacts, in varying degrees, with the participants and tries in many instances to minimise the distance between themselves and those being studied (Creswell, 1994). Bryman (1988) explains that 'the researcher should treat the phenomena being studied as naturally as possible, he or she should seek to minimise the adulteration of the setting under investigation as far as possible' (p.58). As discussed below, my own position on this 'dualism – naturalism' continuum necessarily varied and shifted according to the specific research questions

identified and the varied methodological procedures associated with the specific phases. The complex issues in relation to 'physically active physical education' that my research was concerned to address demanded flexibility in the ways in which and extent to which I interacted with participants.

Data collection

Implicitly linked with the contrasting ontological and epistemological ideals of these paradigm perspectives are the ways in which researchers with different paradigmatic orientations set about collecting, interpreting and analysing data in order to understand the phenomena they are investigating. The two paradigms are distinctly different in these terms. In the main, researchers, consciously or subconsciously, select a paradigm and then follow a format for pursuing the methodology – the process of the research – that is consistent with the paradigm that they adopt. House (1994) suggests that, 'paradigmatic assumptions provide a framework for making methodological choices about what to investigate, how open ended the study should be, how important the views of participants are, how to collect, analyse, and interpret data, what arguments to employ and how to present results' (p.15). Thus, method choice depends primarily on the nature of the subject matter and the content of what is investigated and on certain assumptions. It is common for research underpinned by positivism to be characterised by a 'nomothetic' approach to methodology and an experimental model of data collection where:

> It is epitomised in the approach and methods employed in the natural sciences, which focus upon the process of testing hypotheses in accordance with the canons of scientific rigour. It is preoccupied with the construction of scientific tests and the use of quantitative techniques for the analysis of data. Surveys, questionnaires, personality tests and standardised research instruments of all kinds are prominent tools which compromise nomothetic methodology.
>
> (Burrell and Morgan, 1979, p. 6-7)

The nature of such an approach to data collection is one that emphasises the importance of basing research upon systematic protocol and technique, that adheres to prescribed methods within a formalised process in an attempt to maintain objectivity, and that adopts a manipulative methodology which attempts to control both researcher bias and other external variables (Sparkes, 1992). In contrast, advocates of the interpretive paradigm contend that to understand the social world, first hand knowledge of the

phenomena under study is needed. In these terms, researchers choose to immerse themselves in the environment of study, getting close to the subject exploring and describing in depth and detail the phenomena of interest. Such an approach is termed 'ideographic' and;

> ...emphasises the analysis of the subjective accounts which one generates by 'getting inside' situations and involving oneself in the everyday flow of life – the detailed analysis of the insights generated by such encounters with one's subject and the insights revealed in impressionistic accounts found in diaries, biographies, and journalistic records. The ideographic method stresses the importance of letting one's subject unfold its nature and characteristics during the process of investigation.
>
> (Burrell and Morgan, 1979, p.6)

Qualitative study locates the researcher within the setting observed and 'involves an interpretive, naturalistic approach to the world where researchers study things in their natural settings, attempting to make sense of, or to interpret, phenomena in terms of the meanings people bring to them' (Denzin and Lincoln, 2000, p. 3). For interpretivists the research process and all its inherent elements is informed by ongoing inquiry. But that is not to imply that there is no prior thought, plan or theoretical framework around which the inquiry is based. To the contrary, such planning and theoretical grounding is a defining feature of sound qualitative research.

Thus, the scientific and interpretivist perspectives offer different visions of the research process and provide their own particular portrait of the world. Advocates of the different paradigms see, study and interpret the world in very different ways depending on their purposes and interests. For Sparkes (1992) this is not to infer that one vision is better than the other, rather that they are different and should be understood within the full context of the research orientation when judgements are to be made about particular forms of research.

Paradigm choice in physical education

As a research discipline physical education historically has had its roots firmly embedded within a scientific paradigm. Researchers from within the field have embraced the methods and assumptions of this perspective (Brustad, 1997; Harris, 1983). This traditional dependence has been attributed to several factors. For Sparkes (1992) the

dominance of this paradigm within physical education research is understandable due to the historical importance (and successes) of scientific empiricism and the tremendous gains in knowledge fostered within the natural sciences. Harris (1983) is not surprised by this common association with a paradigm developed in the natural sciences, as 'the choice of a model for seeking truth has perhaps been facilitated by the almost unquestioned respectability this research paradigm is granted within academia in general' (p.83). A further reason for this traditional dominance has been provided by others who have suggested that this tendency is related to the need to gain recognition and acceptance within scientific communities and the way in which the emulation of an empirical-analytical approach to research has been seen to enhance the credibility and security of physical education (Brustad, 1997). Indeed, Kirk (1989) suggested that this approach forms an orthodoxy within research in teaching in physical education that;

> ...is guided in particular by a belief in the need for objective measurement of teaching and learning in real-life situations, which can be achieved through empirical observations of life in the classroom and life in the gym, the construction of standardised instruments to collect data from these observations, and the often sophisticated deployment of statistical techniques in the analysis of the data
>
> (p.124)

However, echoing the earlier work of Sparkes (1992), Brustad (1997) argues that a scientific paradigm is both limited and limiting and that, although they have received only relatively little attention and exposure from within the profession, alternative research paradigms have much to offer the study of physical education. Increasingly this potential is being recognised within the physical education profession and researchers in the field point to the growth and contribution of research from alternative paradigms. Indeed, more recently, an increasing amount of physical education literature draws from the interpretive and a combination of paradigms (for example, Cale, 2000; Fernandez-Balboa, 1997; Green, 2000). The call for research in physical education to utilise a variety of perspectives (Curtner Smith, 2002) is reflected in this thesis.

Combining paradigms, achieving compatibility and coherency.

Of particular importance to the research presented in this thesis is the extent to which different paradigms can be utilised within a single study. Sparkes (1992) has suggested that attempts to accommodate different paradigms are problematic and paradigms need to

be seen as viable and valuable alternatives in their own right, to be judged accordingly using appropriate and distinct criteria. In considering the issue of paradigm commensurability further, Sparkes (1992) contends that;

> Paradigms are alternatives in the sense that one can operate in different paradigms sequentially over time, but mutually exclusive, in the sense that it is not possible to operate in each of these paradigms at any given point in time, because in accepting the assumptions of one, the assumptions of the other are denied
>
> (p.53)

In this regard, Sparkes has also argued that 'the two paradigms dominating research at present are separate and distinct, with attempts to bring them together in a marriage of convenience being misguided since each makes different assumptions about the world and what constitutes appropriate research' (1989b, p.132). Similarly, others have expressed the belief that at the philosophical level commensurability between worldviews is not possible; however, it is possible to blend elements of one paradigm to another so representing both world views (Lincoln and Guba, 2000).

This compatibility becomes a problem when the paradigms of choice are different in terms of beliefs and assumptions, especially if researchers 'pick and choose' among the axioms of scientific and interpretivist paradigms simultaneously. For Lincoln and Guba (2000) the axioms and underpinning assumptions are contradictory and mutually exclusive. Salomon (1991) presents a different view, arguing that although contrasting paradigms can address different issues and yield different kinds of knowledge, they ought to be seen as complementing, informing, guiding and enriching each other, rather than ruling each other out. Furthermore, Salomon argues that in 'the case of quantitative and qualitative research in education, cohabitation is not a luxury, it is a necessity if any fruitful outcomes are ever expected to emerge' (p.17, my emphasis). Lincoln and Guba (2000) suggest that the various paradigms are beginning to 'interbreed' such that two theorists previously thought to be in irreconcilable conflict may now appear to be informing one another's argument. Lincoln and Guba (2000) appear to support the potential for interwoven viewpoints, where the incorporation of multiple perspectives and borrowing or 'bricolage' seems useful, richness enhancing, or theoretically heuristic. Indeed, they suggest that inquiry should no longer be treated as a set of universally applicable rules or abstractions.

However, not all researchers share such sentiments about attempts to transcend paradigmatic boundaries, especially, when these attempts seemingly reflect opposing assumptions of particular worldviews. Sparkes (1989b) does not deny that active cooperation and interaction among disciplines should be encouraged. But in relation to claims of paradigmatic compatibility expresses concern since;

> ...they allow those who claim to be naturalistic researchers to deflect their attention away from the specific dilemmas of adopting this particular paradigm and legitimate the borrowing of ready-made solutions from the positivist framework. Such practices are highly questionable and serve only to facilitate the imposition of a positivist framework upon naturalistic research
>
> (p.135)

The research presented in this thesis has drawn from both of the two dominant paradigmatic perspectives. The philosophical differences between these paradigms have been recognised and fully acknowledged throughout the various phases of my work. Some retain the view that at the broadest level paradigm approaches are mutually exclusive, but that once paradigmatic perspectives are established and we move to consideration of design and methods, it becomes easier to envisage the approaches used together in a complementary manner (Hedrick, 1994). This raises the questions of whether particular paradigms should be associated (or identified with) particular methods and in turn, whether particular methods should be identified with particular paradigms?

Mixing methods and multiple methods

The emergent, developmental, progressive and 'multiple method' nature of my work is a departure from conventional quantitative studies in the area of physical education. It is far more in line with qualitative work in the field, but also in contrast to much of that in the degree to which quantitative methods were utilised. In agreement with Gorad (2002), my methods choices were 'seen as complementary rather than direct alternatives, but their appropriateness changes with the phases of a research programme' (p.13).

The contestation surrounding paradigmatic debate and the extent to which paradigms should be *linked* with methods is based on the assumption that a particular paradigmatic approach required and/or encouraged researchers to choose between method types, rather than combine them (Reichardt and Cook, 1979). Although with Gorad (2002) I recognise

that we should not 'waste time' in methodological 'paradigm wars' instead of concentrating on the development of methods. Here it is important to pursue debates regarding multiple and mixed methods and the different schools of thought that have emerged. 'Purists' argue that paradigms and methods should not be mixed, they are incompatible because each are based on paradigms that make different assumptions about the world and what constitutes valid research. From this perspective, Sparkes (1989b) contends that the linkage and logical relationship between the principles inherent in the paradigm and the methods chosen, that is methods are, or should be derived from first principles, makes methodological marriage misguided. For Sparkes, (1989b) the choice of research strategy or methods can never be independent of philosophical issues, 'but rather are inseparable in terms of making sense of the research process within any given paradigm' (p.136). From an alternative 'situationalist' perspective it is asserted that certain methods are appropriate for specific situations. Rather than believing that a researcher should choose to align with one paradigm, and so choice of methods, or the other, Patton (1990) advocates a 'paradigm of choices', where methodological orthodoxy is rejected in favour of methodological appropriateness. This approach recognises that alternative method choices are *appropriate for different situations and within different* contexts. Finally, 'pragmatists' integrate multiple methods into a single study and argue that a 'false dichotomy exists between qualitative and quantitative approaches and that researchers should make the most efficient use of both paradigms in understanding social phenomena' (Cresswell, 1994, p.176). Pragmatists see a more instrumental relationship between paradigm and methods than those who advocate a purist or situationalist viewpoint. Methods are regarded as a collection of techniques, where 'the attributes of a paradigm are not inherently linked to either qualitative or quantitative methods. Both method types can be associated with the attributes of either the qualitative or quantitative paradigm' (Reichardt and Cook, 1979, p.16). Creswell (1994) defines such a combined approach to study as one where 'the researcher uses multiple methods of data collection and analysis' (p.174). For Creswell it is advantageous to the researcher to combine methods to better understand a concept being explored, and researchers should consider integrating paradigms at several phases of the research process. Similarly, Patton (1990) expresses the belief that routine ways of thinking and paradigmatic blinders constrain methodological flexibility and creativity by locking researchers into unconscious patterns of perception and behaviour that disguise the biased, predetermined nature of their methods decisions. Dey (1993) supports this notion and highlights further the difficulty

of drawing sharp divisions between qualitative and quantitative methods and suggests that there is much to be gained from collaboration, and in his view, these methods complement each other and 'there is no reason to exclude quantitative methods from the qualitative toolkit' (p.4).

In recent research Stephen Gorad (2002) has argued that central in the drive towards increasingly the quality of educational research is an increase in the capacity to conduct multi-method work. Gorad (2002) contends that there are not insuperable philosophical or technical difficulties involved in combing different forms of data and argues there is a need to overcome 'methodological schisms'. He calls for a 'compleat' researcher who is prepared to 'find, use and critique *all* evidence relevant to their quest, regardless of its form (p. 2).

Silverman (2000) is less enthusiastic about either the need or the desire for combining methods, suggesting that there are instances where 'multiple methods' are often adopted in the mistaken hope that they will reveal the 'whole picture' and that we should 'receive with caution the clarion calls for multiple methods' (p.99). He echoes the sentiments of Hammersley and Atkinson (1983) who point out 'one should not adopt a naively 'optimistic' view that the aggregation of data from different sources will unproblematically add up to produce a more complete picture (p.199).

In important respects, choices with regard to range of data collection methods used in this research were influenced by my own developing awareness and understanding of paradigmatic assumptions research methodologies and methods. Ultimately, my research utilised methods that at the outset of the work I did not envisage would feature in the inquiry. As I explain below, aspects of the quantitative approach to the research both facilitated and generated the need for the use of qualitative methods.

From principles to pragmatics: key issues and questions

As I explained in Chapter 1, my research pursued the existing expression of, and potential future expressions of, physical activity discourses in teachers' pedagogical texts. It addressed the scope for teachers' texts to pursue the flexibility inherent in 'official' texts and thereby challenge the established dominance of particular discourses

in physical education. Central to this inquiry was a concern to address the extent to which physical education currently, and may potentially, contribute to young peoples' 'health', and more specifically, their physical activity levels. The respective contribution that different types of lesson and different elements of lessons made to the time pupils are engaged in particular physical activity levels was addressed. In parallel, broader debates about the aims and focus of physical education, the structure of the curriculum, and the pedagogical approaches employed, were engaged with. All were acknowledged as influential in constructing particular teaching and learning contexts and thus influencing pupil physical activity levels. In its latter stages the research pursued, via an interventionist stance, changes to lesson focus, structure and pedagogy that may raise the profile of physical activity in teaching and learning in physical education. Below I provide a phase by phase overview of key research questions and methods

Phase one: physically active physical education? A focus on girls

The first phase of research was informed by a review of literature surrounding issues associated with the physical activity levels of children. An issue emerging from this review centred around concern in relation to the decline in children's, and particularly girls', participation in physical activity. At this time my research was concerned to address relationships between girls' physical activity and physical education in relation to the *direct* contribution made by physical education lessons, specifically from within invasion games contexts, to physical activity levels. My research sought to generate further understanding of girls' physical activity levels in terms of the amount of time spent participating in levels of activity associated with health benefits.

Data was collected from eighteen mixed ability girls from two single sex physical education classes within a single middle school in urban Flatfordshire. Data was gathered throughout a unit (comprising of six lessons) of netball. Further details of the sample of girls and also the context of study are provided in chapter 4. In relation to data collected in this phase, a variety of methods for assessing physical activity levels in young people including, self-report, observation, motion sensors, and heart rate telemetry have previously been identified (Cale, 1998). Each of these measures possesses relative merits and shortcomings (See chapter 4). In considering these I chose to record physical activity levels using an objective measurement technique that has been previously employed to

monitor young peoples' levels of habitual physical activity and during curricula physical education lessons (Armstrong and Welsman, 1997; Stratton, 1996a, 1996b, 1997). Heart rate monitoring, although not a direct measure of physical activity, does provide a measure of the relative stress being placed on the cardiopulmonary system and has been shown to provide a continuous, valid and reliable assessment of level of physical activity (Armstrong et al, 1990; Treiber et al, 1989). Heart rate monitors are relatively unobtrusive and comfortable for the young person to wear during physical education lessons. Heart rate telemetry thus was considered the most appropriate physical activity measurement method for practical use within physical education lessons. The amount of time the girls spent participating in levels of physical activity associated with health benefits was determined through establishing a series of distinct heart range 'zones' ranging from light, to moderate, moderate to vigorous and vigorous in intensity. The procedures for data collection and analysis during this phase are described in detail in Chapter 4.

Findings relevant to the focus and design of phase two

The first phase highlighted the potential of physical education to contribute towards the attainment of appropriate levels of physical activity for young people. However, it failed to fully establish the various lesson components and pedagogies that gave rise to these particular physical activity levels. Essentially, phase one highlighted the need for a more detailed pedagogical analysis of the physical activity levels attained within the lessons in relation to lesson content and teaching practices. The rationale for phase two was further driven by contemporary debate in relation to the multiple and often diverse aims inherent within the NCPE and the various challenges facing teachers of physical education in choosing and/or prioritising the focus of lessons (see for example, Corbin, 2002; Penney, 1998b).

Phase Two: Girls' physical activity in physical education – Implications for pedagogy

The second phase of study was concerned to address the different contribution, in terms of activity participation, made by different types of lessons and different elements of lessons, to the time that the girls spent at particular activity levels. In addition, the ways in which these physical education contexts privileged or marginalized particular

discourses associated with physical activity was pursued. The implications of the findings arising for curriculum design, lesson structure and teaching approaches in physical education were also considered.

Data from six of the girls who participated in all six of the lessons used in phase one were used for the detailed pedagogical analysis undertaken in phase two. The context of the lessons was therefore the same as in phase one. Physical activity data obtained through heart rate monitoring, together with data collected through observation and field notes, was used to address the different contribution that different types of lessons and different elements of lessons made to the time that the girls spent at particular activity levels. A further detailed analysis of the heart rate responses of the girls was undertaken to address the amount of time that physical activity was within the same four predetermined heart rate zones utilised in phase one.

The behaviour of the girls in the lessons was also recorded using a systematic observation strategy. This was undertaken to complement and support the physical activity analysis and to determine the type of behaviours the girls engaged in during lessons. Cohen, Mannion and Morrison (2000) suggest that observational research techniques afford the researcher the opportunity to gather 'live' information from 'live' situations. These authors distinguish between types of observations on a continuum from unstructured to highly structured;

> A highly structured observation will know in advance what it is looking for and will have its observation categories worked out in advance. A semi-structured observation will have an agenda of issues but will gather data to illuminate these issues in a far less pre-determined or systematic manner. An unstructured observation will be far less clear on what it is looking for and will therefore have to go into a situation and observe what is taking place before deciding on its significance for the research.
>
> (p.305)

In the course of my research, two contrasting, yet complementary strategies were used to observe the physical education contexts, systematic observation and semi-structured observation. In a similar manner, Galton and colleagues (1983, 1985) combined observation methods in their studies of patterns of interaction in schools in the form of systematic observation and ethnography. These authors suggested that the ethnographic component of the observation put 'the flesh on the bones' from the use of coding

schedules and permitted the researchers to highlight certain features that were not included in the systematic observation schedules. In my research the video recording of all lessons enabled the subsequent coding of the incidence of a variety of predetermined pupil behaviours, providing a detailed structured catalogue of their engagement in the lessons. The structured observation system and associated collection protocols and coding definitions and are discussed in further detail in chapters 5 and 6 that are each specific to the use of these strategies for data collection.

van der Mars, (1989b) reminds us that the messages obtained and interpreted through systematic observation are contextual and should be considered in the light of the situations that were observed. In this regard, and in parallel with the structured observation strategy, the particular dynamics and pedagogies occurring within the physical education research contexts, such as, issues of lesson context, lesson content and teaching methods and approaches were captured through supplementary semi-structured observational field notes. I endeavoured to record particular lesson aspects and events as accurately as possible within the context in which they occurred as I observed the lessons. I supported this with further descriptive and reflective notes made during a subsequent post-lesson review of the video-taped lesson where I also added my initial analytical and interpretive comments on the data. In addition I made further notes detailing any informal conversation or particular noteworthy comments from pupils and teachers *that took place within the research setting.*

It is important here to also note that my position on the 'participant-observation' continuum (Gold, 1958) changed throughout the phases of my work. In discussing the distinction that differentiates observational strategies, Patton (1990) highlights the extent to which the observer will be a participant in the setting being studied and suggests that;

> This is not really a simple choice between participation and non participation. The extent of participation is a continuum that varies from complete immersion in the setting as full participant to complete separation from the setting as spectator. There is a great deal of variation along the continuum between these two extremes. Nor is it simply a matter of deciding once and for all a study how much the observer will participate. The extent of participation can change over time. In some cases the researcher may begin as an onlooker and gradually become a participant as the study progresses.
>
> (p.206)

My position on the continuum necessarily varied within and between different research settings as encountered in my research. Different positions were appropriate for the different phases of the research and the exploration of the questions that they were respectively associated with. In the initial phases of my research I considered myself to be located at the 'observer' end of the continuum and adopted a 'marginal position', seeking to minimise the disruption that my presence would bring to the research setting. This positioning was to some extent governed by my philosophical approach to the research process at this time. However, as the phases progressed I became increasingly more of a 'participant'. This shift was driven not only by my changing approach to the research process and the 'interventionist' nature of the final phase, but also by pragmatic issues. For example, in the schools used in phase 4 I was asked to act as a supply teacher.

Findings relevant to the focus and design of phase three

The second phase of study raised a variety of issues in relation to the ways in which and the extent to which physical activity is, can be, and should be included in physical education lessons. The ways in which physical activity was incorporated into the physical education contexts observed in phase two served to inform and shape the intention of my research in subsequent phases. Specifically, the need arose to pursue ways in which learning associated with participation in appropriate physical activity can be promoted in physical education through pupil centred approaches. Phase three therefore addressed effort perception as a strategy that may be used by teachers and pupils in order to both monitor and regulate physical activity in structured exercise settings with a view towards extending and developing pupils knowledge, skills and understanding of physical activity within and beyond physical education contexts (see Phase 4).

Phase Three: Design and development of a new scale for self-monitoring physical activity in young people

This phase addressed the development of a scale of perceived exertion that may subsequently be used in physical education contexts. As I discuss in Chapter 6, the potential use of scales of perceived exertion to help children and young people interpret, understand and monitor physical activity and feelings of exercise in physical education has been previously recommended (Green and Lamb, 2000; Harris 2000) yet exploration

into the concept has been very limited. I established the need for an effort perception scale that was meaningful to children in applied exercise contexts, and specifically within physical education. I was concerned to develop an effort rating scale specifically for young people and to explore the ability of children to 'rate' and 'regulate' their activity levels in a structured exercise setting using this scale. The Pictorial Children's Effort Rating Table (PCERT) validation process is provided in Chapter 6 (see Appendix C)[1].

Having established the ability of children to refer to the PCERT to interpret and manipulate the intensity of their exercising efforts during structured exercise, I faced the challenge of whether this tool and focus could be used in the context of physical education lessons to facilitate greater understanding and awareness of physical activity levels and provide children with a prompt to 'self-regulate' their activity levels for health benefits.

Phase 4: Case study investigation of physical activity, effort perception and physical education

The findings emerging from phases one, two and three generated the key questions and issues addressed in the final phase of my research. This phase, the greatest in terms of the extent of my involvement and the data collected, was concerned with; (i) the application of effort perception, and the PCERT specifically, in an applied physical education context as a method that might be used by used by teachers and pupils in order to extend understanding of physical activity levels and to enable pupils to effectively monitor and regulate their physical activity levels within and beyond physical education, and (ii) the pedagogical and 'broader' issues in relation to teachers' and pupils' perceptions of physical education and physical activity levels in physical education that would influence their responses to the use of the PCERT. In this respect, expressions of particular discourses evident in various 'official' texts at case study schools, and in teachers' and pupils' texts were explored.

Two schools agreed to participate in this phase of my research. The schools consisted of one middle school and one upper school situated in urban areas of Flatfordshire. To

[1] The publication of this validation process is in; Yelling, M., Lamb, K. and Swaine, I. (2002) Validity of a pictorial perceived exertion scale for effort estimation and effort production during stepping exercise in adolescent children, European Physical Education Review, 8, (2): 157-177.

maintain consistency with the age range of children used in previous phases, two year 10 classes and two year 7 classes were recruited from each school to take part in the final phase. Again, to maintain consistency with previous phases these classes were timetabled to participate in curricula invasion game lessons (football and netball) throughout the duration of the case study phase. In Chapter 7 I provide full details of the school and lesson contexts and selection processes employed.

The data collection methods chosen for this phase are perhaps best described as an 'omnibus field strategy', encompassing multiple (and complementary) methods of generating data, including measures of physical activity and perceptions of activity, systematic and semi-structured observation strategies (as previously described in phase two), as well employing documentary analysis, interviews and focus groups. Consistent with previous phases of study, heart rate monitoring was chosen to measure the physical activity levels of the pupils within physical education lessons. The PCERT was used to explore children's perceptions of effort within these physical education contexts. Below I outline my use of methods associated with interviewing, focus groups, and documentary research. My use of these methods is described further in chapter 7.

Reporting talk: interviews and focus groups

In this phase of research I utilised informal semi-structured interviews with physical education teachers and school head teachers to explore, identify and clarify issues that were central to my research agenda and 'to obtain descriptions of the life world of the interviewee with respect to interpreting the meaning of the described phenomena' (Kvale, 1996, p.5-6). As we will see, these key figures provided detailed information in relation to the aims and focus of curricula and extra-curricular physical education provision and the implementation of physical education and physical activity in their schools. An 'interview as conversation' approach allowed continuity of response, flexibility of questioning, and permitted the exploration of a number of established issues and themes that had been developed and informed from the data gathered and analysed within and between the various research phases. The research focus and the emergent pedagogical issues and themes arising from all previous phases of data collection served to inform and guide the creation of specific interview agendas. These themes and topics formed a

framework from which additional questions were developed. Details of the specific issues the interviews were concerned to pursue are provided in Chapter 7.

I also used focus group discussions to gain insight, perception and explanation of pupils' experiences of physical activity and physical education, and specifically within the physical education lessons during the period of study. Focus groups were seen as advantageous in comparison to semi-structured researcher-pupil interviews or questionnaires for use with children in the context of this study as the focus group setting permits the creation of an open permissive, environment where children's talk is promoted and encouraged through discussion, interaction and the expressing of opinion, attitudes and beliefs (Rossman and Rallis, 1998). Also, children may be less intimidated and more willing to extend ideas when discussing issues within a group than engaged in long dialogue in isolation with a researcher (Lewis, 1992). The focus group discussions were guided by an agenda focussing on the issues that were developed from data emerging throughout ongoing research in relation to physical activity and physical education. Again, as with the interview process, the structure of the agenda was not fixed or binding but questioning was flexible enough to permit, and promote if necessary, a non-sequential approach to the asking and answering of questions and attention devoted to the discussion of issues of interest. Specific details in relation to the context, composition and agenda of the focus groups are provided in Chapter 7.

Documentary research

I also gathered documentary material from the schools. This was for descriptive purposes and as supplementary material to support the analysis and interpretation of data gathered via other methods. It particularly enabled me to pursue the particular discourses of physical education and physical activity privileged and marginalized in, and through, curriculum structures, organisation and pedagogies witnessed in the case study schools. Key documents collected included the school prospectus, physical education departmental handbooks, details of school curricula, including schemes and units of work, and school OFSTED reports.

Physical education teacher questionnaires

In the final phase of the research I designed a questionnaire for distribution to physical education teachers to elicit descriptive information about their teaching background and qualifications, their current teaching responsibilities and the provision of physical education at their school (see Appendix D). Responses were used to complement the data previously gathered at their school, and as an important point of reference for the interviews conducted with the teachers (see above and Chapter 7).

Ethical issues

In the section below I outline my approach to other issues and challenges associated with research design that I faced throughout each of the phases. Firstly, I address ethical issues of working with children, gaining informed consent and establishing trust.

Access

A series of steps were taken to obtain permission for me to enter each of the school settings for the purposes of collecting data. These involved identifying schools that were both willing and interested in participation in the research through a process of mail enquiry to the 'key gatekeepers', usually the school head teacher, in a small number of schools within Flatfordshire. Often this enquiry was redirected (by the head teacher) to the head of the physical education department. I subsequently visited interested schools, outlined the purposes of specific phases of research, and sought agreement from the physical education teachers and pupils to participate. Different schools were used throughout the phases.

Informed consent

Once permission had been obtained from individual school head teachers and heads of department, permission for participation in the study was sought from pupils and their parents/guardians. Each of the phases necessarily demanded a separate process of gaining informed consent and subsequent stages of negotiation with key figures involved in the different aspects of the research. In each phase letters were sent home to parents outlining

all aspects of the study and requesting their permission for the participation of their son or daughter in the research. These letters of parental consent contained an accompanying form for gaining child consent. I provide further details of the sampling procedures, characteristics of specific populations, and steps for gaining school, parent and pupil consent within each phase discussed in subsequent data collection chapters. Letters and informed consent agreements for each phase can be found in Appendix E.

Gaining trust and the role of the researcher

My role as a researcher varied throughout the research process and this was particularly evident, and became increasingly significant, as my work relationships with heads of department and pupils developed. Early on in my research I was cognisant of making attempts to try and minimise the influence of my presence in the research settings and 'remove myself' as much as possible from the events taking place. To some extent this approach reflected the particular issues that at this point the research was concerned to address. As the research progressed I became increasingly aware of the importance of my presence as 'researcher' being inextricably linked, and definitely not separate from, the research process itself. Ongoing fieldwork in schools during phase four reflected this 'shift' in thinking and stance. I made clear attempts to adopt qualitative assumptions and minimise the distance between the researcher and participants. This enabled me to develop relationships with and gain support from 'significant others' and 'key figures' that in turn enabled me to gain 'rich' and descriptive data, and indeed, secure ongoing access and a commitment to the research from the schools, teachers and pupils involved.

In achieving goodwill and co-operation I felt that it was especially important to establish and foster amicable relations with physical education heads of department and individual teachers involved in the research. As we shall see, processes of building trust and confidence were not always easy or straightforward and I was presented with various challenges. In particular, a relatively experienced teacher felt threatened by sustained research and perceived scrutiny (see chapter 8).

Confidentiality and anonymity

I also recognised that as a researcher I had a responsibility to consider the effects of my research on the participants and to act in such a way as to preserve their dignity, professional interests and identities through ensuring anonymity. The essence of anonymity is that 'information provided by participants should in no way reveal their identity' (Cohen, Mannion and Morrison, 2000, p. 61). However, the obverse of this, as Cohen, Mannion and Morrison (2000) point out, is that personal data that is unique can identify the supplier. Although the schools had no objections to their identity being revealed, anonymity is ensured by not using the names of the school settings or participants, or any other personal means of identifying them, throughout this thesis. I use pseudonyms to refer to the settings and participants involved throughout all phases of the research. Anonymity was further maintained during different phases of work by ensuring that when collecting data and preparing data for analysis and interpretation names and other identifiers were removed and code numbers were used for referencing data and documentation.

Thesis construction and writing: portraying the process on paper.

This thesis is a collection of work that encompasses different perspectives and methodologies and seeks not to polarise debates, but instead concentrates on the possibility of compatibility between different forms of research. Writing presented me with a variety of challenges in relation to structure, content and style. It was desirable for this thesis to reflect my central pedagogical agenda, yet I was conscious that in its entirety there were distinct elements, methodologies and phases that clearly drew from qualitative and quantitative approaches and that these approaches, notably quantitative, traditionally have tended to adopt a particular structure and format for thesis organisation. My knowledge of what was the expected and acceptable format for a 'traditional' thesis centred around the approach outlined by Phillips and Pugh (1994) where 'a thesis should contain a review of relevant literature, a description of what has been done, what came out of this, a discussion of these results and finally some conclusions that can be drawn and suggestions for future work' (p.63). This thesis and the various chapters contained within it follow a flexible and less precise format to the one described above. Each of the chapters contains an implicit focus on the particular

methodologies, results and discussion inherent within each phase, whilst in parallel I have attempted to draw particular attention to the links between the various phases and the common themes my research was concerned to address. Although I have used methods drawn from both scientific and interpretive research traditions, I again reiterate that the focus of this thesis is upon my interpretations, that are both informed by, and central to the underlying and central pedagogical dimension of my work. In relation to the discourse I adopted in terms of my 'voice' throughout this thesis I echo the thoughts of Locke (1989) who suggests that in qualitative writing, 'the safe comforts of remaining invisible behind the passive voice of the third person is unacceptable...accountability demands a clear presence in the first person' (p.2). In this regard I consistently refer to 'I' and 'my' throughout this thesis.

The above discussion of the phased and progressive nature of my research and associated issues of data collection and ethical considerations matches the chronological progression of the work. It is important to note the progressive dimension associated with the various phases and the ways in which each of these phases served to inform and guide the focus and emphasis of proceeding work. The following chapters (4, 5, 6, 7, 8 and 9) presented in this thesis contain the data, findings and interpretations of the phases outlined above.

## Chapter 4

## The case for physical activity in physical education and the potential for physically active physical education.

The case for physical activity in physical education and the potential for physically active physical education.

The extent of the contribution of physical education to positive health outcomes remains a matter about which there is neither adequate research evidence nor agreement. The specific nature of the contribution that physical education does, potentially can, or indeed *should* make to young peoples' current and future health is far from clear. Multiple and varied aims and claims made in relation to the importance of the school and physical education in providing active experiences for children, continue to feature in the curriculum. The most recent version of the NCPE states that 'PE makes your heart beat faster' (DfEE/QCA 1999, p.14-15) implying that physical education lessons will include physical activity that will have beneficial (cardio-vascular) health benefits. However, as indicated in my previous discussion, the status, location, representation and expression of interests of health and physical activity within both 'official' policy texts and teachers' pedagogical texts remains varied. Furthermore, these interests are invariably marginalized amidst an over-riding focus on other interests in and for physical education (see chapter 2).

In 2000 Penney and Chandler raised a number of key questions about the purposes, focus and future(s) of physical education that they saw as in need of critical reflection, discussion and debate. Many of the issues raised have particular relevance to my research. Specifically, Penney and Chandler (2000) prompted teachers and teacher educators to consider;

> What type of citizens, what type of learners do we want to play a major part in developing? What are the implications of these visions for the subject and specialism of physical education, and for our work as teachers and teacher educators? Does physical education contribute to the development of societies that we endorse? With changes in societies, and our visions for the future, is there a need for changes in our specialism? How can physical education be, 'more connective' (within the subject, with other aspects of the curriculum, and with lives and societies beyond schools) and express a 'lifetime approach' to education?
>
> (p.72)

These questions drew attention to the need to reflect more deeply on my own 'visions of the future for physical education' and how health and physical activity are, and should be, addressed in and through physical education in schools. My own visions for

the 'type of citizen' and 'future societies' that the physical education profession should seek to develop reflect those of Harris (2000). In her view a physically educated young person is one who;

- Has learned the skills necessary to perform a variety of physical activities:
- Participates regularly in physical activity:
- Understands the implications of being involved in physical activity
- Values physical activity and its contribution to a healthy lifestyle

(Harris, 2000, p. 11)

Furthermore, my research has reflected Penney and Chandler's (2000) emphasis that teachers have a professional responsibility to provide opportunities 'for all children to experience enjoyment and achievement in physical contexts, and to gain skills, knowledge and understanding that will be a basis for them to lead active and healthy lives' (p. 76). I regard this as a focus for the subject that has important potential to challenge the current emphases of many curricula. In my research I was particularly interested in pursuing how, via different pedagogical practices, teaching may counter the established 'voice' (Bernstein, 1990, 1996, see chapter 1) of and for physical education. Could the research encourage a message capable of challenging the 'voice'? Below I pursue in greater detail recommendations for physical activity amongst young people, the 'case' for physical activity in physical education, and the extent to which discourses of physical activity can, do and should feature in teachers' pedagogical texts.

A case for physical activity

Throughout the last decade it has been acknowledged that physical activity and exercise have enjoyed an increasingly high profile and are more readily accepted as key contributors to public and national health (Laventure, 2000). Yet despite this recognition, Laventure (2000) notes the challenges within modern society facing those concerned with promoting health and physical activity and states that;

> The plethora of TV channels may continue to swell the ranks of passive sports spectators rather than active participants. Advances in technology continue to remove habitual physical activity from everyday life. The mechanisation of the workplace and the development of labour saving devices in the home have been followed by advances in technology which reduce further daily energy

> expenditure. We have machines designed to vacuum the autumn leaves in our gardens, email is accepted as the standard means of communication within the workplace and the internet is removing much of the 'physicality' from our leisure pursuits including the spread of home shopping. The predominance of escalators in public places and a built in resistance to active modes of transport, all these factors contrive to make the active choice increasingly difficult.
>
> (p. 6)

Similarly, Riddoch and Boreham (2000) contend that 'we are now living in an environment which is toxic to activity, where the opportunities for children-and adults-to be physically active are fast disappearing' (p.249). Armstrong and Welsman (1997) have suggested that the effects of regular physical activity in promoting a range of physical health benefits and psychological and emotional well-being are extensively documented. Yet, there is a considerable body of evidence emerging suggesting that 'sedentary living is an element of contemporary lifestyle that impacts significantly, and adversely, upon health' (Riddoch and Boreham, 2000, p.244).

McManus (2000) emphasises that the most common rationale for the study of the physical activity habits of children is related to issues of health, particularly as physical inactivity during childhood is believed to be related to risk factors for ill health in adulthood. Furthermore, the importance of promoting physical activity as a worthwhile and positive behaviour for the current and future physical and psychological health of children and young people is becoming more readily recognised (Boreham et al, 1997; Calfas and Taylor, 1994; Harris 2000; Welk et al, 2000). Yet, while the importance of physical activity for children and young people is accepted, evidence supporting the full extent of this relationship is not as extensive as that generated for adults (HEA, 1997; Riddoch and Boreham 2000). However, at the same time, there is general consensus within the medical and educational professions that there is strong justification for children and young people to participate in 'appropriate' amounts of physical activity (HEA, 1997). Specifically, the HEA (1997) have previously documented the major research evidence in relation to the potential contribution of regular physical activity to children's health. It was stated that;

- Physical activity is thought to improve young people's quality of life through promoting mental well-being and extending the range of activities in which they can participate

- Evidence suggests that physical activity is an important component in reducing childhood obesity, along with a low-calorie diet and behaviour modification.
- There is evidence that an active lifestyle during childhood and adolescence may have a positive impact on the tracking of risk factors for cardiovascular disease.
- Activity during childhood and adolescence is thought to have an important role in reducing the development of osteoporosis through enhancing peak bone mass.
- Research indicates that those who are active in childhood and adolescence are more likely to become active adults.

(HEA, 1997, p. 14)

Furthermore, the growing awareness of the positive association between participation in regular physical activity and beneficial physiological, psychological and social health outcomes activity levels amongst young people have become a focus for research (Armstrong and Bray, 1991; Armstrong, 1998; Armstrong and Welsman, 1997; Armstrong et al, 2000; Cale and Almond, 1992; Sleap and Warburton, 1992, 1994; Welsman and Armstrong, 1997; Welsman and Armstrong, 2000). Below I discuss key findings arising from research in this field.

How much physical activity do children experience?

Concerns have been expressed over the apparent low levels of levels of physical activity in children and young people (Armstrong et al, 1990; Armstrong and McManus, 1994; Cale and Almond, 1992; Riddoch et al., 1991). Evidence suggests that children and young people in the UK are relatively inactive and that such low levels of habitual physical activity represent a cause for concern[1] (Cale and Almond, 1992, Armstrong and Welsman, 1997). The suggestion is that some children lead largely sedentary lifestyles and that they may not be physically active enough for current or future health benefits.

Welsman and Armstrong (2000) have specifically reported that although secondary school age children's physical activity levels have not dramatically decreased over the last 10 years, their activity levels remain low and many have continued to adopt sedentary lifestyles. Sustained periods of physical activity participation are not

characteristic of young peoples' activity behaviour. Intermittent and sporadic activity is more common (Welsman and Armstrong, 2000; Armstrong and Welsman, 1997), and physical activity participation has been shown to decrease as children progress through their secondary education (Armstrong et al, 1990; Welsman and Armstrong, 2000).

The physical activity experiences and participation rates of girls have been identified as of particular concern (McManus and Armstrong, 1996; Welsman and Armstrong, 2000). In the UK, girls have consistently been shown to be less active than boys and the decline in activity associated with age has been shown to more marked in girls (Armstrong and Welsman 1997; Armstrong, 1998; Welsman and Armstrong, 2000)[2]. Girls have therefore been highlighted as a priority target group for the promotion of greater levels of physical activity participation (Biddle et al, 1998; Cale, 1996; Kirk et al, 2000). In parallel, there has been increased interest in the engagement of girls in physical education. The degree to which particular activities, and/or the ways in which they are taught, and/or other issues of context (for example, kit, showers) influence the degree to which girls will be 'actively engaged' with the subject has been explored (Kirk et al, 2000; Williams and Bedward, 1999).

How much physical activity is enough?

This is a contentious issue that has received considerable recent research attention (Cale and Harris, 1993, 2001; HEA, 1998; Sallis and Patrick, 1994). However, until recently guidelines for appropriate levels of physical activity in young people were not clearly established and were largely based upon adult exercise prescription guidelines for developing and maintaining cardio-respiratory fitness and health (For example, American College of Sports Medicine, (ACSM), 1978, 1990). These guidelines, and other early exercise recommendations for children, (ACSM, 1988; Simons-Morton et al, 1988) generally indicated that physical activity must be of vigorous intensity for at least twenty continuous minutes three times a week to provide health benefits. More recently age and maturation specific guidelines with

[1] Caution is required when interpreting data from a variety of studies that have explored physical activity levels as often the methods used for data collection and strategies for analysis have been diverse.

[2] In an international context similar activity patterns of boys and girls have been reported in the USA (Kelly 2000) and Singapore (Gilbey and Gilbey, 1995)

regard to the type, level and frequency of physical activity sufficient to benefit health in young people have been developed. Encouragingly these guidelines reflect a shift in thinking away from an emphasis on gaining 'fitness' by engaging in high intensity activity of a vigorous nature, towards the view that 'No pain and you still gain', 'it doesn't have to be hell to be healthy' and 'some exercise is better than none' (Harris 2000, p. 2). Participation in physical activity of a lower intensity is thus being recommended. Harris and Cale (1997) have suggested that any reluctance by physical education teachers to recognise the value of more moderate forms of activity to health may be detrimental to the promotion of lifelong health-enhancing physical activity in young people.

The most recent guidelines for physical activity in children and young people in Britain, developed by the HEA in 1998 proposed that young people should participate in physical activity of at least moderate intensity for 30 to 60 minutes per day as a part of their lifestyle. More specifically the HEA (1998) recommended that firstly,

- All young people should participate in physical activity of at least moderate intensity for an average of at least half an hour per day, and *preferably one hour per day.*

And in addition,

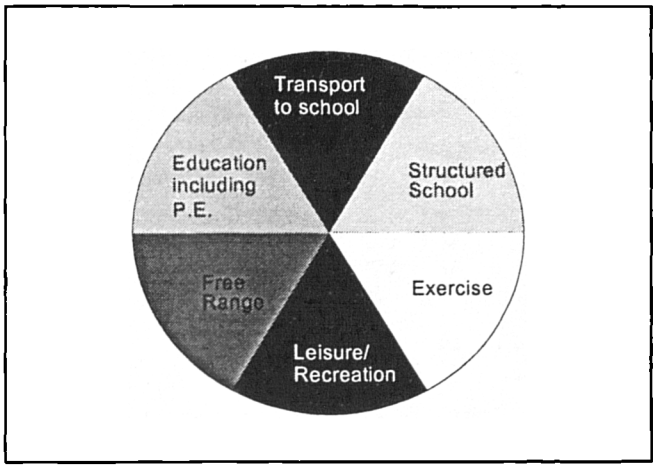
- At least twice a week, some of these activities should help to enhance and maintain *muscular strength and flexibility, and* bone health.

> Moderate intensity physical activity is activity equivalent to brisk walking, which might be expected to leave the participant feeling warm and slightly out of breath. Vigorous intensity physical activity is equivalent to at least slow jogging, which might be expected to leave the participant feeling out of breath and sweaty.
>
> (HEA, 1998, p. 2-3)

The HEA (1998) identified a number of ways in which one hour of appropriate physical activity can be accumulated each day. They reinforced the important message that young people's health related physical activity needs can, and should be met through a variety of activities participated in throughout the day. They identified that some of these activities would be in school and furthermore, should be an element of the curriculum. Laventure (2000) presents an 'all-inclusive model' to illustrate this (Figure 2) and specifically the role of schools in supporting the realisation of the HEA's recommendations. As Laventure (2000) contends, 'whilst

teachers of physical education and schools are not solely responsible for the activity levels of young people, they can make a major contribution towards enabling young people to develop lifetime habits of physical activity' (p.8).

Figure 2: How can young people be active for one hour a day?




Laventure (2000, p.8)

For Harrison (1998), the HEA 'Young and Active' policy document was particularly welcome as it;

> ...challenges physical education to examine its role in coming to terms with the clear evidence of a significant decline in activity levels throughout the secondary school years and in particular the low levels of physical activity (including sports participation) among girls and young women.
>
> (Harrison, 1998, p. 5)

Harris and Cale (1997) suggest that whilst guidelines are undoubtedly very useful, they should be applied with common sense and sensitivity and should be regarded as recommendations rather than 'strict or rigid' prescriptions. Below I pursue the various ways in which, and the extent to which, the school and the physical education lessons that they offer potentially can, or indeed should, contribute towards contemporary health and physical goals for young people.

Schools, physical education and physical activity.

Green (1994) has argued that despite ongoing confusion in relation to the 'proper aims and purpose of physical education' a consensus has emerged within the profession that it is desirable to encourage active lifestyles for young people. Physical education professional bodies (The Physical Education Association of the United Kingdom; PEAUK and British Association of Advisors and Lecturers in Physical Education; BAALPE) have expressed the value of promoting regular physical activity. The PEA UK Mission Statement (1998) stresses the importance of physical activity in physical education lessons by stating; 'physical education allows young people to be physically active...and pupils should be taught to be physically active and made aware of the importance of physical activity in respect of future health benefits' (PEAUK, 1998, p.4). Similarly, the BAALPE Charter (1998) demonstrates further commitment to promoting physical activity by recommending that young people have the right to develop confidence and self-esteem through the development of a fit and healthy body. The government's proposals to improve the health of the general population; 'Saving Lives: Our Healthier Nation' (Department of Health, 1998) also expressed a commitment to the value of education and schools in equipping children and young people with the skills to adopt a healthier lifestyle. Further commitment to the promotion of physical activity was also recently highlighted in the government's investigation of physical education and school sport. More specifically, it was identified that the 'Government believes that two hours of physical activity a week should be an aspiration for all schools, throughout all key stages' (QCA, 2001, www.qca.org.uk/ca/subjects/pe/pess.asp. 03/04/01). Thus, schools and the physical education lessons that they provide are recognised as having both an instrumental role in creating positive physical activity opportunities and also notable potential for the provision of active school-based experiences for children and young people (HEA, 1998; Harris, 2000). Yet as we have seen, a clear and focussed expression of these interests is not readily apparent in official policy texts such as the NCPE, nor necessarily within teachers' texts. Arguably, such interests continue to be positioned marginally amidst other more established discourses of sport and performance in physical education.

Fox (1992, 1996) has argued that preparation for lifetime exercise represents the greatest contribution that physical education can make to the quality of life of people and that schools represent a last chance to access a captive audience drawn from a full range of individuals in a population. For Gilliver (1999) physical education represents the *only* context within the National Curriculum in which children's physical development and health and well-being can be actively promoted. Welsman and Armstrong (2000) recognise that;

> Although schools cannot be expected to ensure that participation in the physical education curriculum will necessarily provide a sufficient volume of physical activity to fulfil current guidelines, their role in providing an appropriate setting for the promotion of physical activity is well recognised.
>
> (p. 154)

Based on the evidence above, physical education lessons clearly have the potential to contribute towards pupils' physical activity needs and it certainly is *possible* within the context of physical education for lessons to make a positive, meaningful and enjoyable contribution to young people's physical activity levels. However, as others have argued (see Penney and Evans 1999) it is important to recognise that the goal of promoting health and physical activity specifically is not the only, nor necessarily the single most important aim of physical education, or of the NCPE specifically. Nor is physical activity the sole or primary aim of the multi-faceted concept of health, or of HRE in physical education (Harris, 1998a, 2000). With Harris (2000) I contend that physical activity goals should be viewed within the context of the 'holistic umbrella' of HRE that aims to contribute not only towards pupils' physiological and psychological health, but also to their social, emotional and cultural development within the specific context of the diverse and multiple aims of physical activity promotion and physical education curricula. In this respect, for Cale (1997);

> Within curriculum time teachers are able to provide young people with the necessary information and facts about physical activity and with experiences of a wide range activities. In addition, they may help pupils set individual activity goals and targets, identify the general motivation and inhibiting factors to physical activity participation and explore the ways of overcoming obstacles to participation.
>
> (p. 19)

As we have seen, interests 'other than health' are invariably dominant in physical education curricula. Ideally issues of health and physical activity promotion certainly

should not compromise these aims, and nor in turn should health interests be compromised by the pursuit of other aims. Yet, the compatibility of 'different' interests perhaps needs to be pursed more critically. As the previous discussion has detailed, despite recognition within 'official' texts (DfEE/QCA, 1999) and in recommendations from other organisations (BAALPE, 1998; HEA, 1998; PEAUK, 1998) the expression of discourses of health and physical activity remains patchy and diverse in physical education. Unless positioned more to the fore issues of health and physical activity seem in danger of being destined to remain in the periphery of the subject.

Laventure (2000) has suggested that the physical education profession has a long way to go before it can have a real impact on the 'health of the nation'. For such an impact to occur in practice Cale (1996) has pointed to the need for many teachers to not only acquire a new knowledge base in relation to HRE, but also to reconsider and redevelop their philosophies and approaches to teaching HRE. As we will see, arguably the reconsideration and redevelopment needs to be in relation to physical education not merely HRE (see chapters 8, 9 and 10). In a clear attempt to promote the benefits of health and physical activity and to locate these issues at the forefront of teachers' minds, and their pedagogical texts, recent guidelines for HRE in the National Curriculum contained strong statements about the potential role of schools in relation to promoting an awareness of health;

> Schools are an efficient vehicle for providing physical activity programmes because they reach virtually all children and schools have the potential to improve the health of young people by providing programmes and services that promote enjoyable, lifelong physical activity.
>
> (Harris, 2000, p. 5)

For some teachers and teacher educators HRE and the promotion of physical activity is a key component of physical education, that is 'central to and underpins the subject' and 'serves to co-ordinate the range of experiences in physical education' (Harris, 2000, p. 10). However, within physical education there are multiple, diverse, not particularly compatible and often competing aims and agendas. As we have seen, the various discourses, associated with particular interests are positioned differently, reflecting their differential status. Whilst teachers face pressure to provide enjoyable active experiences that promote lifelong physical activity participation for their pupils, they are also challenged to address many other requirements and expectations of and

for the subject. Nevertheless, promotion of physical activity amongst children and young people is a concern of and for not merely physical education, but schools as a whole. The 'whole school' has been identified as possessing a unique capacity to foster and develop lifelong physical activity and health habits. Advocates of physical activity promotion in schools call for an integrated approach to the promotion of physical activity and health where 'physical activity should not be divorced from other aspects of a healthy lifestyle' (Armstrong and Welsman, 2000. p.253) and contend that provisions should be made for whole school cross curricula approaches. Initiatives such as 'Active schools', 'Activemark' awards, (British Heart Foundation/Sport England, 2000), 'Health promoting schools', (Cale, 1997, 2000; Harris, 2000) and National Healthy School Standards, (DoH/DfEE, 2000) have sought to promote these approaches and furthermore also bring discourses of health (and physical activity) and sport into alignment with one another in whole school settings.

All of these schemes/initiatives highlight the potential of school-based physical education lessons to contribute towards developing physically educated young people. However, previous research suggests that physical education does not always maximise its potential to promote and facilitate appropriate physical activity patterns or foster lifelong physical activity and health habits amongst young people, and that teachers require guidance on what constitutes appropriate physical activity in physical education lessons (Harris, 1997a; HEA, 1997; Stratton, 1996a, 1996b, 1997). Indeed, Almond and Harris (1997) are not surprised that teachers need help in delivering physical activity given;

> Teachers' starting point in terms of their sport and performance-related background, and the limited attention to the area in initial teacher training, in INSET and in the numerous National Curriculum resources which have focussed entirely on the activity areas and have 'overlooked' or 'barely touched upon' HRE work.
>
> (p.25)

Below I pursue research that has addressed guidelines in relation the type and nature of physical activity that potentially can, or indeed should be included within the context of physical education.

How much physical activity should children experience in physical education?

In his review of children's physical activity levels in British physical education lessons, Stratton (1996) has suggested that to contribute towards physical activity goals 20 minutes or 50% of physical education lesson time should consist of physical activity that is moderate-to-vigorous in intensity. Stratton (1996a) contends that moderate physical activity intensities between 50 and 59.9%, and moderate to vigorous physical activity intensity between 60 and 74.9% of heart rate reserve (HRR, see below) are appropriate physical education curriculum goals for promoting physical activity. To achieve a moderate level of physical activity children should be moving (walking or faster) for at least 50% (or 20 minutes) of lesson time with a heart rate of between 50 and 59.9% HRR, and to achieve a vigorous level of physical activity children's heart rates should be in excess of 60% of HRR for at least 50% or (20 minutes) of lesson time. Morrow and Freedson (1994) have suggested that participation in vigorous physical activity (i.e., above 75% of HRR) may stimulate increased cardio-respiratory fitness. Thus, for physical education to contribute towards the development of cardio-respiratory fitness, lessons should include activity that is moderate to vigorous in intensity, (i.e., that stimulates heart rates in excess of $150b \cdot min^{-1}$) for 20 minutes or 50% of lesson time (Stratton, 1997). Recent recommendations for children's physical activity within physical education have been cognisant of the need to provide enjoyable as well 'active' experiences, specifically Harris (2000) states that, 'during physical education lessons, pupils should be physically active for at least 50% of the available lesson time. The activity should be purposeful and the experience positive' (p. 20)

Physical education teachers have been encouraged to recognise the benefits of participation in moderate intensity physical activity rather than overzealously promote participation in sustained bouts of vigorous activity during physical education lessons. Thus with others (Harris, 2000) I agree that a shift in emphasis away from expressions of 'hard' activity 'as' physical activity in physical education towards a focus on comprehensive, meaningful, enjoyable and inclusive physical activity is certainly preferable. Capel (2000b) considers that 'whilst it is important for physical education to make a useful contribution to pupils' participation in recommended levels of physical activity, it is equally important, in the interests of pupils' long term health,

that children and adolescents develop positive attitudes to life-long participation in physical activity' (p.174). Where attention is focussed solely on the promotion and inclusion of 'high intensity' activity this can actually 'turn pupils off' rather than 'on' to physical activity and lead to 'undesirable practices such as "forced" fitness regime, directed activity with minimal learning or pupil involvement...arduous testing, and/or dull uninspiring drill' (Harris, 1997c, p. 11).

In contemporary physical activity promotion, we have thus seen teachers being increasingly encouraged to incorporate and promote physical activity recommendations for young people into structured physical education lessons, whilst acknowledging that they should not turn (or return) physical education into a form of 'harsh' physical training. Harris and Almond (1994) have stated;

> We would like to make it clear that HRE is not merely about involving children in physically demanding, vigorous activity. The objective is not to force children to be fit in limited periods of time, but to provide them with the understanding, competence and confidence to want to be active both at school and in their own time, now and in the future.
>
> (p.66)

The prompts are therefore for physical education teachers to contribute towards fulfilment of activity recommendations for young people by incorporating physical activity into physical education lessons that is purposeful, achievable, enjoyable and that varies in intensity for at least 50% of available lesson time. The focus should be upon physical activity that is moderate in intensity with opportunities for some participation in light and moderate-to-vigorous physical activity. These opportunities will be interspersed with instruction and demonstration, resulting in patterns of intermittent activity. Activity will not (and need not) be continuous. The accumulation of intermittent periods of physical activity throughout the lesson is a practical approach to attaining physical activity goals. These are not unrealistic aims for physical education nor for physical education teachers. But, how much physical activity do children actually experience in physical education lessons?

How physically active are children in physical education?

Curtner-Smith et al. (1996a) and Babiarz et al. (1998) have suggested that much of physical education lesson time is spent simply standing, sitting, listening and waiting, and that pupils experience limited opportunity to engage in appropriate physical activity levels. In his review of physical activity in physical education lessons Stratton (1996a) concluded;

> The majority of physical education lessons do not stimulate appropriate amounts of moderate to vigorous physical activity and therefore do not contribute significantly to physical activity guidelines for children and adolescents.
>
> (p. 229)

It has also been suggested that certain activities are better at promoting appropriate physical activity than others. 'Invasion games' lessons have been identified as more conducive to the attainment of physical activity goals than dance, athletics, gymnastics and 'fitness' lessons (Li and Dunham, 1993; Raudsepp and Pall, 1998; Stratton, 1996a, 1997). Once again, it is important to acknowledge here that physical activity within physical education lessons will vary across activities that have different aims, focus, structure, content and teaching style. Furthermore, it is clearly not the case that all pupils will be equally active in all lessons.

There are a limited number of studies that have investigated gender differences in activity levels during physical education lessons (Stratton, 1996b). Conflicting evidence exists regarding differences in girls' and boys' attainment of physical activity levels during physical education. In the UK and in international contexts some research has revealed no differences, whilst other studies have reported that girls are less likely to experience the type and amount of appropriate physical activity than boys (Gilbey and Gilbey, 1995; Mota, 1994; Sarkin et al, 1997; Stratton, 1997). Although some of the gender differences in physical activity might be explained by biological and psychological factors such as maturation rates and levels of motivation, Armstrong and Welsman (1997) have suggested that social and environmental influences should also not be dismissed. Girls have been identified as a specific target population for the promotion of physical activity, and physical education and school sport have been specifically identified as possessing the potential to influence girls' physical activity participation (Cale 1996; Williams and Bedward 1999). In response, a Nike:Youth

Sport Trust partnership project explored 'girl friendly' physical education and sought to encourage greater levels of participation and activity through a focus on changing young peoples' beliefs, values and attitudes towards physical education (Kirk et al, 2000). For Kirk et al. (2000);

> The concern remains that adolescent girls are less likely than their male counterparts to participate in physical education and sport and to lead active lives when they leave school. The consequences of this situation are that inactive girls are at greater risk that active young people of coronary heart disease, osteoporosis, and other diseases associated with sedentary lifestyles.
>
> (p. 3)

Kirk et al. (2000) point not only to the physical consequences of inactivity but also to the associated social and psychological issues at stake;

> They (girls) also miss out on the additional benefits often claimed for participation in physical activity and sport, such as the acquisition of a range of physical competencies that in turn can contribute to the development of self-confidence and self-esteem.
>
> (p. 3)

A number of other factors have been highlighted that may influence girls' participation in physical education and in turn levels of physical activity. These include biology and physical capacity, level of education, issues of femininity and masculinity inherent in physical education, parental influence, and curricula factors related to the nature of lesson activities, and the structure, organisation and style of delivery of physical education lessons (Babb and Kirk, 1999).

Physical activity levels and participation rates during physical education have also been shown to differ with age. Stratton (1997) has suggested that children's moderate to vigorous physical activity levels during physical education lessons increase from nine to ten year olds to a peak at eleven to twelve years of age, and then decrease in later school years. This is in agreement with findings from habitual activity studies during childhood that have reported a decline in the activity levels of both sexes throughout adolescence with this rate of decline being 2.5 times greater in girls than boys (Armstrong and Welsman, 1997). This peak in activity participation at eleven to twelve has been associated with a move from primary to secondary education that frequently is paralleled with a change from being taught by non-specialist to

specialist physical education staff (Stratton, 1997). The general decline and the gender difference in the decline activity in later school years have been partially attributed to factors associated with declining levels of pupil motivation and enthusiasm for physical education (Stratton, 1997).

Further links to pedagogy in physical education arise from findings that have suggested that children's ability (in terms of physical competence within the context of the particular activity being undertaken) and physical education class size influence their physical activity levels. Stratton (1996b) has suggested that children of high and average ability experience more continuous periods of activity in physical education lessons than lower ability children, and Goode et al. (1976) have shown that pupils of high ability experience more physical activity in the 'game' phases of the lesson than those pupils of low ability. Sproule et al. (2000) reported that pupils have greater opportunity to experience more physical activity in physical education lessons when class sizes are smaller. If we are looking to raise activity levels, these latter findings have implications not only for classes but also for groupings within classes.

In considering both the claims and expectations in relation to how much physical activity is, (and in reality can be) provided physical education lessons, we can see that many factors will influence the physical activity levels of pupils in lessons and that many of these are pedagogical in nature. The specific lesson aims, the lesson structure, teaching style employed, grouping strategies, the playing area, and resources and equipment available should be acknowledged. Furthermore, and to a degree always irrespective of these influences, some children will be more active than others during physical education lessons than others, reflecting differing physical competence, degrees of motivation and levels of fitness (Stratton, 1996a).

One of the still often overlooked and problematic issues relating to attempts to make accurate assessments of rates of physical activity participation amongst young people, and specifically, in physical education contexts is the vast array of methods available for collecting physical activity data and the various criteria employed for interpretation of data (Harro and Riddoch, 2000; Sleap et al, (2000). Below I pursue these issues and in doing so provide a backdrop to the initial inquiries undertaken in my research that focussed upon the physical activity levels of girls during a series of netball lessons.

Physical activity in children: methods of measurement.

A variety of different methods have been used to assess physical activity patterns but only a limited number are appropriate for use with children (Cale, 1998). For Armstrong and Welsman (1997) a measurement method is only appropriate for use with young people if it is socially acceptable, does not involve cumbersome equipment and will not influence the child's normal patterns of activity. McManus (2000) argues that no single technique for assessing physical activity in children can describe both the biological and behavioural aspects of activity participation. Therefore consensus on which methods are most appropriate and how they should be applied is limited (Baranowski and DeMoor, 2000). The most accurate method of reporting physical activity is to measure energy expenditure (Montoye et al, 1996). However, this involves practical difficulties, is costly and reveals limited information regarding frequency, intensity or duration making it particularly unsuitable for school-based field settings. Due to such impracticalities physical activity is often estimated through the use of movement counts, heart rate or time spent in movement categories (for example, sitting, walking). The common techniques used to assess children's physical activity include self-report, observation, motion sensors and heart rate monitoring. However, none of these is considered a 'gold standard' measure of physical activity (Armstrong and Welsman, 1997). Each has advantages and disadvantages for field monitoring of physical activity (Armstrong and Van Mechelen, 1998; Cale, 1998).

Self-report measures, such as activity diaries or activity recall questionnaires (for example, Previous Day Physical Activity Recall, PDPAR, Weston et al, 1997; Physical Activity Questionnaire for Adolescents, PAQ-A, Kowalski et al, 1997) are convenient to administer to large numbers, unobtrusive, non-reactive and are effective in terms of cost. However, concern exists about the accuracy of self-report data from children as accuracy is reliant upon their recall and honesty (Welk et al, 2000). Self-report methods do not directly assess observable behaviour and therefore the data represents 'memories of the behaviour of interest that have decayed, been filtered through perceptions and biases, and have been tainted by competing memories, social desirability, and misunderstandings of the instructions' (Sallis, 1991, p. 215). Cale (1994) has identified two major sources of potential error; the cognitive processes involved in recall, and the definition of the desired variables. For the latter issue,

since the exact nature, duration and intensity of activity required to promote health benefits in children remains uncertain, different self-report instruments have tended to measure different aspects of children's physical activity (Cale, 1994). In the case of the former issue, self-report places considerable demands upon the ability of the young person to recall details of past events;

> While children may omit important information simply because they are unable to remember what activities they have done, they may also omit information by failing to attend to the characteristics of activity which are salient to the investigator. What may be vital information to the researcher may not be deemed as important by the child completing a form or responding to an interviewer, thus vital activity information could be overlooked
>
> *(Cale, 1994, p. 440)*

Direct systematic observation is common as a method for assessing children's physical activity in habitual and school settings (Sleap and Warburton, 1992, 1994, 1996; Warburton and Woods, 1996). Systematic observation is a direct measure of behaviour that requires little inference or interpretation *(McKenzie, 1991). It can* provide detailed physical activity and behavioural information, but can be affected by subject reactivity, be labour intensive and time consuming, thus not easily permitting the assessment of large groups (Cale, 1998). Systematic observation instruments (for example, System For Observing Fitness Instruction Time, (SOFIT), McKenzie et al, 1991; Children's Activity Rating Scale, (CARS), Puhl et al, 1990) involve an independent observer making a series of coding decisions based upon the behaviour of those under observation and placing these decisions into distinct activity categories of interest, for example, 'stationary', 'walking', 'very active'. This is achieved via momentary time sampling typically of 10s to 60s duration using pencil and paper in 'live' settings or after the event using video recordings. This information is then used to determine the total amount of time spent engaged in different levels of activity. Recent technological advances permit more complex observational data to be collected via computer-based software packages (For example, Behavioural Evaluation and Systems Taxonomy (BEST), Sharpe, 1997). Observers should be properly trained to be able to follow particular observation system coding conventions and not to be evaluative or judgemental. This is commonly achieved via the establishment of inter-and intra-observer reliability, where the latter refers to the degree to which an observer consistently applies coding conventions and records the

same behaviours when repeatedly coding the same events, and in the former, the degree to which two or more observers viewing an activity using the same behaviour definitions and coding conventions record the same codes (See van der Mars, 1989a, 1989b).

A further method for assessing physical activity levels utilises motion sensors. Basic pedometers assess distance covered by counting steps taken, and activity monitors provide estimates of physical activity by recording bodily movement. Advanced electronic motion sensors, known as accelerometers (for example, Caltrac, Tritrac R3D) can measure both frequency and intensity of movement. The Caltrac system is capable of measuring movement in only the vertical plane and is not sensitive to movements involving twisting or bending or movement of the arms, whereas the Tritrac R3D can record movement in three dimensions rather than one, thus providing greater insight into the nature of activity participation (Eston et al, 1998).

For Welsman and Armstrong (2000) heart rate monitoring represents the most appropriate method for quantification of physical activity participation in young people. Heart rate monitoring, although not a direct measure of physical activity provides a measure of the relative stress being placed on the cardiopulmonary system, (Armstrong et al, 1990) and has been shown to provide a continuous, valid, reliable and objective assessment of physical activity levels (Treiber et al, 1989). However, interpretation of heart rate data can be complex because it provides little information about the nature of the activity that has been measured. It can also be influenced by the participants' metabolism, emotional and psychological states (Armstrong and Welsman, 1997). Heart rate monitoring alone can provide some valuable insights into young peoples' physical activity patterns, but in order to make an accurate assessment of physical activity participation Armstrong (1998) has recommended that a combination of techniques should be used.

Physical activity measurement in physical education

The best known method for assessing physical activity in physical education and that has been used in the context of physical education teaching is heart rate monitoring (Cale, 1998, Strand and Reeder, 1993, Strand et al, 1997; Stratton, 1996a, 1997). With

heart rate monitors becoming more readily available and affordable it is not uncommon to see heart rate monitoring featuring in schools and particularly in examination courses in physical education. In many respects, heart rate monitoring became somewhat symbolic of HRF developments throughout the 1980's and 1990's (see Chapter 2). Assessment of heart rate responses have involved the calculation of lesson mean heart rate or the time spent within a predetermined heart rate zone during lessons. Stratton (1996a) has highlighted the limitations and inconsistencies with heart rate data that is currently available for physical education lessons. Reporting mean heart rate can camouflage the lesson time spent within particular heart rate thresholds and provides little information about the patterns of physical activity participation during physical education, yet it does provide a measure of the overall intensity of the entire lesson (Stratton, 1996a). Stratton (1996a) has suggested that the use of time spent in different heart rate zones rather than mean heart rate to quantify the physical activity experiences of pupils in physical education provides a clearer picture of the frequency, intensity and duration of particular activity behaviours. He has identified heart rate reserve (HRR; defined as the difference between an individual's maximum and resting rate) as the most effective method of estimating appropriate physical activity heart rate zones in young people. Most studies using HRR in physical education have used age-related estimations of resting heart rate (RHR) and maximal heart rate (MHR) to calculate heart rate intensities. This is problematic when generalising heart rate reserve values across groups due to the variation in individual resting and maximal heart rates. Empirically determining appropriate heart rate thresholds for the sample being studied using the direct measurement of RHR and MHR prior to calculation of HRR is considered essential when quantifying the amount of time pupils spend within predetermined heart rate zones during physical education lessons (Armstrong, 1998; Stratton, 1996a). The calculation of time spent within HRR zones when measuring pupils' activity responses during physical education might further clarify physical activity levels during physical education lessons. Furthermore, to evaluate the contribution of physical education lessons to fulfilment of activity guidelines for children, Stratton (1996a) has suggested actual lesson time and percentage of lesson time with heart rates above predetermined HRR zones should be reported.

Researching physical activity levels: Initial inquiries.

As the preceding discussion has illustrated, the nature of the contribution that physical education does, potentially can, or indeed should make to young peoples' current and future health remain issues in need of further exploration and debate. The first phase of my research was therefore concerned to address the physical activity levels of pupils in physical education lesson contexts. Specifically, this phase sought to generate further understanding of girls' physical activity levels in invasion game lessons in terms of the amount of time spent participating in levels of physical activity associated with health benefits. Below I provide a description of the study methods and the results. I then discuss implications of the findings for subsequent development of this research.

School context

Details of the objectives of my research, the nature of the involvement of the participants, (pupils and members of the physical education department) and a description of the data collection techniques to be employed were distributed to the head teacher and physical education departments of three middle schools in Flatfordshire. Consent for data collection to take place during one term (Autumn) was subsequently obtained from the head teacher and physical education department in one of the schools (see Appendix E). This school was a large co-educational multicultural urban middle school (Number on role = 821) for children aged nine to thirteen (key stages 2 and 3, years 5, 6, 7 and 8). The physical education department consisted of five full time specialist staff (3 males, 2 females) and two part-time staff (1 male, 1 female). Outdoor physical education facilities at the school comprised a large grass pitch space including a hockey pitch, a rugby pitch and 2 football pitches. A tarmac playground on which 4 netball courts were marked was also used for physical education lessons. Indoor areas comprised the school hall (used for indoor wet-weather lessons, dance and gymnastics) and a small gymnasium that was used for a variety of indoor activities. At the school physical education lessons were organised and timetabled in mixed gender class groups for all areas of activity in year 5. In years 6, 7 and 8 rugby and netball were taught in boy's and girl's groups only whilst all other activities are taught to mixed groups.

Pupils

I obtained informed parental and child consent (see Appendix E) from two entire year seven single sex (girls) physical education class groups. Subsequently eighteen of these girls (nine from each class group) were randomly selected for analysis of their physical activity levels in netball lessons (see below). The girls were identified by their physical education teacher as of mixed ability and competence in physical education. The physical characteristics of these girls is provided in Table 2.

Table 2: Characteristics of the girls. Values are mean ± SD.

| Age | Resting HR | Peak HR | Stature | Mass |
|---|---|---|---|---|
| (years) | ($b.min^{-1}$) | ($b.min^{-1}$) | (m) | (kg) |
| 11.8 ± 0.3 | 71 ± 6 | 213 ± 5 | 1.48 ± 0.01 | 42.2 ± 9.1 |

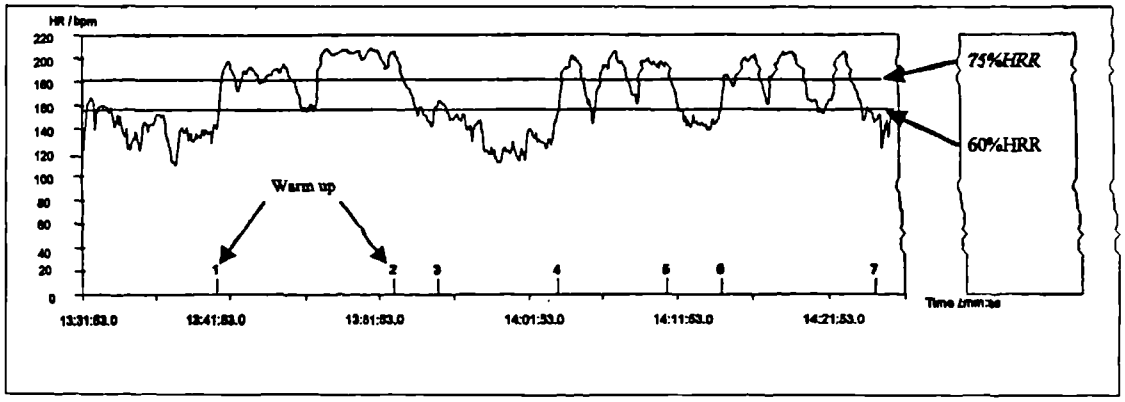
Physical activity data collection

A standard protocol was followed in all lessons in relation to recording the physical activity levels of the girls. This involved heart rate monitors (HRM) being distributed to the pupils for fitting upon entry to the changing rooms. Prior to the start of each lesson the girls reported to the school gymnasium where heart rate monitors were checked for accurate functioning. Recording began when the teacher formally started the lesson in the practical space being used. Pupils were requested to press the 'start' button on their HRM at this time. The pupils reported back to the gymnasium to end recording before entering the changing rooms. The duration of each lesson was equivalent to total recording time on the HRM.

To assess the girls' physical activity levels in physical education each girl's HRR was calculated using measurements of their resting heart rate (RHR) and peak heart rate (PHR). Resting heart rate was recorded as the mean of three consecutive waking heart rates. Each girl was instructed on how to use a HRM and took one home for 3 days. Upon waking in the morning they wore the HRM set to record for 5 minutes. The average of the lowest 30s period was taken as RHR. Peak heart rate was recorded after the completion of a maximal shuttle run test that took place in the school gymnasium (Leger et al, 1988). The girls wore HRM during the maximal running

activity and the average of the highest 5 heart rate readings were taken as PHR[3]. From these data four HRR zones representing light, (<50%HRR), moderate, (50-60%HRR), moderate to vigorous, (60-75%HRR) and vigorous, (>75%HRR) levels of physical activity were subsequently calculated for each of the girls (Stratton, 1996a; Morrow and Freedson, 1994). These HRR zones were chosen to enable the physical activity levels of the girls to be quantified in terms of appropriate activity required for health benefits. Wearing a HRM permitted accurate recording of the girls' heart rate responses during their physical education lessons. This data was subsequently used to generate a heart rate time curve for each of the girls in the lessons in which they participated. An example of a heart rate time curve during a netball lesson is shown in Figure 3.

Figure 3: A heart rate time curve




At this stage of the research my desire was to generate solely descriptive data in relation to the physical activity levels of girls in netball lessons. From the heart rate time curve the amount of lesson time and the percentage of actual lesson time (Stratton, 1997) that the girls experienced each of the four HRR zones previously identified was calculated.

Lesson context and content.

As previously discussed, 'games' lessons are invariably the most dominant area of activity within physical education curricula (Penney and Evans, 1997; Williams and

[3] I acknowledge difficulties associated with such maximal tests and the inherent implications of their use within curricula physical education (see previous discussion in Chapter 2 and Harris, 2000), however for the purposes of obtaining a school-based indicator of maximal heart rate in practical activity and for the context of this research, this method was considered suitable and appropriate.

Woodhouse, 1996). This area of activity received considerable attention within the original NCPE and has continued to be afforded centrality in subsequent revisions and related government initiatives (For example, Sport: Raising the Game, Department of National Heritage, 1995). In this first phase of research physical activity data was collected during a unit comprising of six netball lessons. The planned progressions throughout the unit and key activities for each lesson are identified in Table 3 below.

Table 3: Unit and Lesson Framework.

| | Aims | Main Activities |
|---|---|---|
| 1 | To introduce getting free from a defender in an attacking situation. | Follow my leader, dodging, lose partner. Feint dodge between cones. Relays: 'step and shift' between cones and defenders |
| 2 | To revise netball playing positions and principles of beating the defender | Coached game situations. 6 v 6 / 7 v 7 on full courts. Focus on positioning and the use of feint and dodge. |
| 3 | To further reinforce playing positions and to introduce principles of marking | Coached game situations. 6 v 6 / 7 v 7 on full courts. Focus on 'player' to 'player' marking. |
| 4 | To practice and refine a variety of netball passing and ball handling skills | Netball circuit in 4's. Rotate around various activity stations chest pass, shoulder pass, lofted pass, jumping and blocking, ball handling skills, team relays and shooting drills. |
| 5 | To develop and refine passing skills and footwork rules. To incorporate these into small-sided game situations. | Passing drills in groups of 4 - 6. Stationary in a circle. 2 v 1 passing. 6 v 6 / 7v 7 'End ball' in netball court thirds |
| 6 | To draw together passing, footwork, marking, beating the defender and player positions in full game situations. To develop basic tactics and strategies of attack play | 6 v 6 / 7 v 7 coached game situations. Emphasis on quick 'pass and move' and effective player positioning |

A physical education lesson in the week prior to the six-lesson unit was designated a pilot lesson in order to familiarise pupils with measurement and data collection procedures. The same specialist female physical education teacher (who had six years teaching experience and had taught at this school for all of that time) taught all six lessons to both groups. This teacher's specialist areas were reported to be gymnastics and games, particularly netball and hockey. All lessons took place on the school playground. The teacher was asked to teach all lessons to both groups as planned without changing her pedagogical approach. One group had their lesson timetabled immediately before the school scheduled 'break-time' and the other group was timetabled immediately after 'break-time'. The second lesson was a repeat of the

preceding lesson. This enabled equipment (HRM) to be changed from one physical education class to the other during the break period.

It was observed that all lessons followed a similar format, beginning with a period of static stretching and a cross-country running activity used as a 'warm up', followed by a combination of skill/drill practice time and 'game playing' activities for the remainder of the lesson. Large differences were observed in relation to the proportion of lesson time devoted to skill/drill practice time and game playing activities in particular lessons. These differences and the pedagogical implications for teaching focusing on physical activity in physical education are pursued in greater detail in Chapter 5. To capture the specific contexts in which activity behaviour of the girls within these physical education lessons occurred all lessons were video-recorded.

The physical activity levels of girls during netball lessons

A total of 100 heart rate curves (from a possible 108 - 8 pupil absences) representing girls' physical activity levels in the netball lessons were collected. This data was downloaded from the HRM (Polar Advisor, Oy, Kempele, Finland) and analysed for the amount of time and percentage of lesson the girls experienced physical activity that was of light (<50%HRR), moderate (50-60%HRR), moderate to vigorous (60-75%HRR) or vigorous (>75%HRR) intensity. Total lesson time available for activity participation (i.e., excluding changing time), the overall intensity of the lessons (reported as mean lesson heart rate) and the highest intensity of the lessons (reported as maximum lesson heart rate) was also recorded. This data is shown in Table 4 below.

Table 4: The physical activity levels of girls during netball

| | | Physical activity level | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | **Lesson Time** | **Light** | | **Moderate** | | **Moderate to Vigorous** | | **Vigorous** | | **Ave HR** | **Max HR** |
| | | % | Time | % | Time | % | Time | % | Time | b.min$^{-1}$ | b.min$^{-1}$ |
| Mean | 52:21 | 44.1 | 23:00 | 18.0 | 09:26 | 19.9 | 10:28 | 18.4 | 09:40 | 148 | 201 |
| SD | 02:16 | 13.1 | 06:51 | 3.7 | 02.00 | 4.1 | 02:17 | 7.2 | 03:57 | 9 | 9 |

of time engaged in lesson content that was relatively inactive. For Harris (2000) when pupils are not physically active they;

> Should be involved in tasks that develop their knowledge and understanding (e.g., listening to succinct explanations, observing relevant demonstrations, answering focussed questions) and that enhance their planning and evaluating skills (e.g., making decisions about how to link movements within a sequence, providing constructive feedback to a partner).
>
> (Harris, 2000, p. 20)

Video evidence demonstrated that the 'non-activity' time in the netball lessons observed consisted largely of behaviours associated with either lesson management, for example, listening to instructions, watching demonstrations, off task behaviour and organisational activities, or activity associated with particular lesson content, for example, waiting for a turn in a practice, non/low involvement in game play. These important pedagogical issues are pursued in greater detail in chapter 5.

Physical activity outcomes: What learning outcomes?

In relation to the amount of vigorous activity evident in the netball lessons observed it should be noted that the first few minutes of each lesson was devoted to a cross-country running activity that was used both as a warm up and for team selection purposes. Certainly these two aims seem incompatible. At 'face value' the lessons in the unit of netball observed in phase one made an effective contribution to physical activity guidelines generally (HEA, 1998) and for physical education lessons specifically (Harris, 2000). However, the risk of teachers rising to the challenge of including appropriate amounts of physical activity in physical education through adopting a dangerously narrow interpretation of active physical education also needs to be acknowledged. The extent to which physical education *should* be a context in which particular levels of physical activity are experienced is a matter for and of ongoing debate. For many within and beyond the profession, the fact that physical education is 'an active subject' *is* its defining characteristic. The lessons observed in phase one of my research elicited levels of physical activity that signalled the lessons making an effective 'direct' contribution to physical activity levels amongst pupils. Yet, at least some of this activity may have been included through undesirable pedagogical content and practices that are considered wholly inappropriate within the

context of the broader aims and objectives of physical education and HRE specifically. Despite the netball lessons including an acceptable *quantity* of physical activity there are issues regarding the specific contexts in which the physical activity took place and the quality in terms of the educational learning outcomes promoted that demand further discussion.

Although answering some relevant and important questions in relation to the active content of physical education, this phase of my research also highlighted the limitations of an approach for data collection that focused largely on quantification of direct physical activity without addressing important alternative social issues associated with physical activity in physical education. Arising from this critical reflection was a questioning of more holistic issues associated with physical activity in physical education and the methods of research that are suited to such enquiry. These issues are pursued in greater detail in a specific pedagogical analysis of the data that follows in chapter 5.

# Chapter 5

# Physical activity in physical education: A pedagogical case study

Physical activity in physical education: A pedagogical case study

The previous phase of data collection highlighted the potential of physical education lessons to contribute towards physical activity goals. However the analysis revealed little about underlying pedagogical issues that could be associated with particular activity levels within lessons. Lesson content and structure and differing teaching approaches were clearly issues in need of further inquiry in order for any conclusions to be drawn about relationships between pedagogy and activity levels. Essentially the research has confirmed the need for further monitoring and evaluation of young people's (and especially girls') physical activity levels during physical education lessons and for the findings of such work to be set within broader pedagogical debates. The second phase of the research therefore involved an in-depth pedagogically orientated analysis of a sample of data collected during phase one of my research. The analysis specifically sought to address the different contribution made by (i) different *elements* of lessons, and (ii) contrasting *types* of lessons, to the time that girls spend at particular activity levels in physical education. The discussion below explores the ways in which data reflects differences in the position and status of various discourses in teaching in physical education and considers the implications of the findings in relation to curriculum design, lesson structure and teaching approaches. This phase of the research was particularly notable for generating findings that shaped the direction and focus of my subsequent work.

Participants

Six girls aged eleven to twelve were randomly selected from the eighteen girls used in phase one of this research. The girls had previously provided their own and parental informed consent for participation in the research (see Appendix E). The six girls selected for this phase were described by their physical education teacher as 'able and interested' performers, with five of the girls regarded as of 'high ability' and one as 'average ability' in netball. The limited ability range represented is acknowledged as an important feature of the sample. The sample is not claimed to be representative of the full class participating in this unit, nor of all year 7 girls physical education classes. However, the data arising from the study of these six girls is regarded as

worthy of consideration within the context of wider debates about the focus of attention in physical education teaching, and specifically in relation to the physical activity of pupils. The physical characteristics for the six girls are presented in Table 5.

Table 5: Girls physical characteristics (Values are mean ± SD)

| Age (years) | Stature (m) | Mass (Kg) | PHR ($b.min^{-1}$) | RHR ($b.min^{-1}$) |
|---|---|---|---|---|
| 11.9 ± 0.3 | 1.50 ± 0.1 | 45.0 ± 5.5 | 211 ± 6 | 70 ± 7 |

The unit and lesson context

The unit of netball used for this research comprised of six lessons, each approximately sixty minutes duration. The planned progressions through the unit and key activities for each lesson has been previously described in Table 3 (See Chapter 4). Each of the six girls participated in all six of the netball lessons and the same female physical education specialist taught all lessons. All six girls wore heart rate monitors during all six lessons. As discussed in Chapter 4, all lessons followed a similar format that began with a period of static stretching and a cross-country running activity, followed by a combination of skill/drill practice time and game playing activities for the remainder of the lesson. However, large differences were observed in relation to the proportion of lesson time devoted to skill/drill practice time and game playing time in particular lessons, such that specific lessons were clearly identifiable as either 'game play dominated' or 'skill practice dominated'. These distinct components of the lessons (warm up, time in skill learning activity, time in game play activity) represented a framework for this phase of analysis.

Retrospective systematic observation of video recordings of lessons was utilised to explore the behaviour of the six girls within the physical education lessons and to classify these lessons according to the dominant lesson characteristics. Below I describe in greater detail the principles associated with systematic observation and the specific observation strategy adopted in this phase of the research. To explore the

respective contribution of different components of lessons to physical activity levels of the girls each lesson was videotaped and subsequently coded by the same observer for pupil participation time and pupil management time using a modified version of the Physical Education Teacher Assessment Instrument (PETAI; Phillips, Carlisle, Steffen and Stroot, 1986). Details of observer training and the calculation of observer reliability are provided in Appendix F. Six behavioural and managerial activity headings were used as a framework for analysis in a minute-by-minute interval observational schedule. The six headings were, (i) changing time, (ii) warming up, (iii) skill/drill practice time, (iv) game playing time, (v) organisation, and (vi) knowledge and instruction time. The definitions of these activity behaviours with examples are provided in Figure 4 below.

Figure 4: Observation protocol coding definitions

- **Changing time**: The time from arrival at the lesson to changing into PE kit was completed and pupils were ready to begin participation
- **Warming up**: The time pupils experience warm-up activities. Example: stretches and an aerobic running activity.
- **Skill/drill practice time**: The time pupils experienced direct practising of skill related activities. Example: practising the chest pass or shooting drills
- **Game playing time**: The time pupils are involved in allocated game playing. Example: small sided netball games played on half courts, 7 aside games on a *full court*
- **Organisation**: The time pupils are involved in teacher organisational activities. Example: getting out equipment, lining up, getting into groups or teams, off task behaviour
- **Knowledge & instruction time**: The time pupils were involved in learning about skills or game play. Example: rules question and answer session, watching a coached demonstration.

The time associated with categories 3 and 4 (i.e., skill practice time and game playing time) was collectively defined as the 'activity time' component of the lessons. Using these categories analysis revealed two specific types of netball lesson that featured in the unit; (i) those dominated by **'skill practice time'** (lessons 1, 4 and 5) and (ii) those dominated by **'game playing time'** (lessons 2, 3 and 6). The classification of lessons and the percentage of total lesson time devoted to 'skill learning time' and 'game playing time' for each of the six lessons is detailed in Table 6 below.

Table 6: Proportion of lesson time spent participating in 'skill practice' or 'game playing' in each lesson.

| Lesson | 1 | 2 | 3 | 4 | 5 | 6 |
|---|---|---|---|---|---|---|
| Skill practice time (%) | 28.3 | 0 | 0 | 32.6 | 18.5 | 3.6 |
| Game playing Time (%) | 0 | 34.6 | 36.1 | 0 | 9.3 | 29.1 |
| Lesson categorisation | Skill | Game | Game | Skill | Skill | Game |

It is important to note that the classification is based solely upon data relating to the time spent in different activity tasks (for example, drill practice, game playing) and does not refer to adoption of different 'models' (informed by differing philosophical approaches) for the teaching of games. Analysis of the lesson content and delivery suggested that all of the lessons throughout the unit could be regarded as largely characteristic of an approach associated with 'traditional' pedagogy (see below). However, lessons that were classified as dominated by game playing time, contained aspects of an alternative approach to games teaching (Teaching Games for Understanding, (TGfU), Bunker and Thorpe, 1983, see below). For example, these lessons featured the use of some modified games and use of open-ended questioning in game situations, but evidence of an 'alternative approach' was sporadic rather than consistent in teaching.

Physical activity levels in physical education lessons. How active are pupils at different times?

Prior to the start of each lesson pupils reported to the school gymnasium where HRM were fitted and recording began. Pupils were requested to press the interval time button on their HRM on hearing a loud bleep signal[1]. This signal corresponded to breaks or changes in lesson content relating to the identified behavioural or managerial categories. For example, at the end of the warm-up period or at the beginning of a skill practice. Pressing the interval time button inserted a numerical event marker on the heart rate time curve. This procedure had minimal influence on the girls' participation in the lessons as it coincided with breaks in lesson content. When interpreting the heart rate time curve data with reference to the accompanying observational information, changes in pupil behaviour and lesson activities (for example, time spent participating in the warm up, or in game playing/skill learning

[1] I depressed a portable alarm button that omitted a loud bleep to indicate a change in lesson content.

activities), could be clearly identified using these event markers. The girls reported back to the gymnasium to end recording before entering the changing rooms. The duration of each lesson was equivalent to total recording time on the HRM.

In order to assess the amount and type of physical activity experienced by the girls during each of the netball lessons and during the different components identified above, four heart rate reserve (HRR) zones were calculated for each girl following the procedures explained in Chapter 4. The HRR zones were the same as those use in phase one, namely; (i) *light, <50%HRR; (ii) moderate, (mod) 50-60%HRR; (iii)* moderate to vigorous, (Mtv) 60-75%HRR, and (iv) vigorous, (Vig) >75%HRR. Each lesson heart rate time curve was subsequently analysed for the amount of physical activity experienced in (a) all netball lessons (n = 6), (b) 'skill practice dominated' lessons (n = 3) and (c) 'game playing dominated' lessons (n = 3) in relation to each of the four HRR zones. In order to compare the activity profiles for specific components within the lessons each lesson was broken down further. Subsequent analysis therefore explored the physical activity *levels experienced during (i) the whole lesson, (ii) just* the warm-up component, (iii) the whole lesson with the warm-up removed, and (iv) 'activity time', comprising skill practice time and game playing time during the lesson (i.e., the combination of categories 3 and 4 in lesson observation, see above).

Clearly, there is a need to acknowledge that the data was gathered from only six girls, all of whom were identified as able and motivated participants in physical education, and that the data has arisen from a series of netball lessons taught by one teacher in one school. Certainly it cannot be assumed that all netball lessons, nor all physical education lessons, would give rise to similar findings in terms of either pedagogical characteristics or the physical activity patterns emerging. Neither do I claim that these results are representative of all the girls participating in the netball lessons studied. However, this emphasis of a need for caution in interpretation of the data should to be accompanied by recognition of the value of this and other similar 'case study' style investigations of physical education lessons. Below I present the data arising from this analysis that subsequently served to inform discussion in relation to wider pedagogical issues that this research was concerned to address.

The results of the heart rate data are presented according to two stages of data analysis undertaken. Firstly, data is presented for all six girls in all six lessons to show the girls physical activity levels during, (i) the whole lesson, (ii) only the warm-up, (iii) the lesson with the warm-up removed and (iv) the 'activity time' component of the lesson. (Defined as time spent participating in skill practice and game playing collectively). The average lesson duration was 53 min 12s±38s. The average warm-up time and lesson time without the warm-up was 6 min 14s±11s and 46 min 43s±37s respectively. Total activity time lasted on average, 16 min 59s±17s. The data gathered relating to (i) to (iv) described above is presented graphically in Figure 5 (a, b, c and d) below.

**Figure 5a**:*The proportion of time spent in each HRR zone during the* ***entire lesson*** *(Values are X ± SEM)*

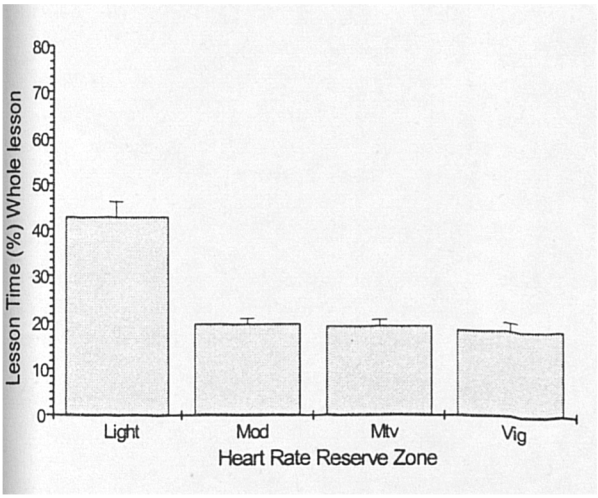



**Figure 5b:** *The proportion of time spent in each HRR zone during the* ***warm-up only****(Values are ± SEM)*

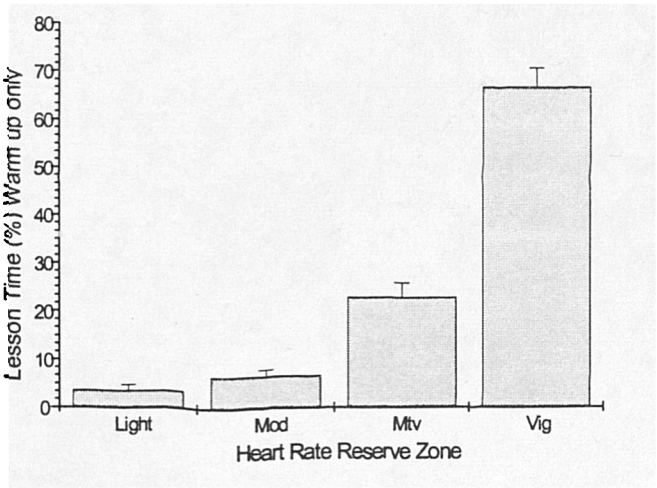



**Figure 5c**: *The proportion of time spent in each HRR zone with the* ***removal of the warm-up time*** *(Values are X ± SEM)*

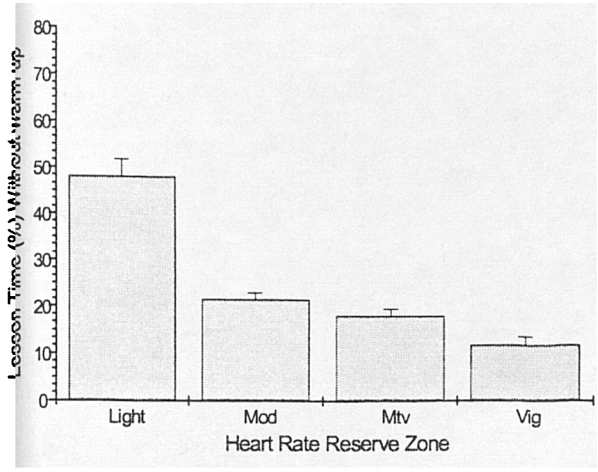
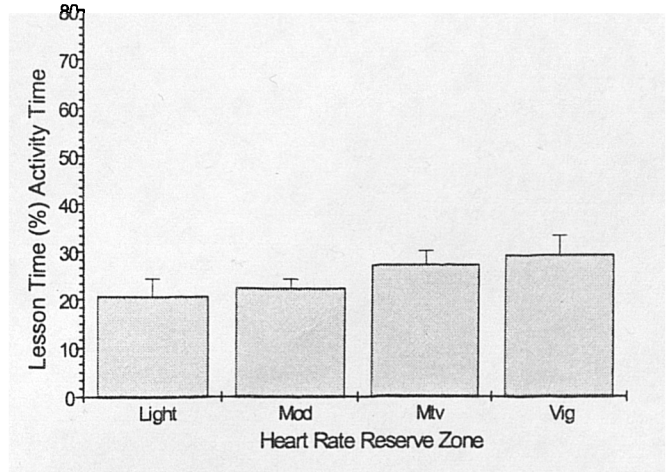



**Figure 5d:** *The proportion of time spent in each HRR zone during* ***only the activity time*** *(i.e., 'skill practice' and 'game play' time combined) (Values are X ± SEM)*



The figures above show that the girls experienced a notable amount of lesson time participating in light activity during the whole lesson (22 min 51s±1 min 52s, or 42.8±3.4% of total lesson time) and during the lesson time with the warm-up removed (22 min 31s±1 min 50s or 48.1±3.8% of lesson without warm up). The particularly vigorous nature of the warm-up component of the lessons is very apparent (4 min 04s±15s or 66.8±3.9% of warm up only). A relatively even dispersion of time in each HRR zone is shown when only the 'activity time' component of the lesson is considered (3 min 09s±35s to 4 min 28s±43s or 22.6±3.9% to 26.3±4.1% of activity time only). These characteristics of the data are discussed further below.

The second stage of data analysis centred upon the two specific types of lesson identified via observation as either 'skill practice dominated' or 'game playing dominated' lessons. In order to generate a comparative picture of activity patterns in these two lesson types, separate data was generated for the three skill practice lessons (lessons, 1, 4, 5), and the three game playing lessons (lessons 2, 3, 6), in relation to (i) the whole lesson, (ii) only the warm-up, (iii) the lesson with the warm-up removed, and (iv) the 'activity time' component of the lesson. The results of this analysis are shown in Figure 6 (a, b, c, and d) below. Average lesson duration for 'skill practice dominated' lessons and 'game playing dominated' lessons was 52 min 25s±35s and 53 min 56s±65s respectively. The warm-up lasted for an average of 6 min 35s±18s during 'skill practice dominated' lessons and 5 min 54s±11s during 'game playing dominated' lessons. 'Activity time' represented 16 min 31s±24s for 'skill practice dominated' lessons and 17 min 31s±22s for 'game playing dominated' lessons. During both lesson types the highest proportion of total lesson time was spent participating in light activity, although this proportion was slightly greater for 'skill practice dominated' lessons (Figure 6a). A further common feature of all lessons was that a large proportion (over 60%) of allocated warm-up time was spent with heart rates >75%HRR, i.e., in vigorous activity (Figure 6b). When the warm-up component was removed from the analysis it was revealed that in both 'skill practice dominated' lessons and 'game playing dominated' lessons the girls spent the greatest amount of time experiencing light activity (Figure 6c). Specifically, when the warm-up was removed from analysis, 55% of 'skill practice dominated' lessons and 42% of 'game playing dominated' lessons were spent with heart rates below 50%HRR.

Alongside these similarities in data for the two lesson types, some differences in the patterns of physical activity also emerged. These are particularly apparent when the 'activity time' component of respective lessons is considered in isolation (Figure 6d). During the 'activity time' component of 'skill practice dominated' lessons the girls experienced similar amounts of time participating in each HRR zone. In contrast, in the 'game playing dominated' lessons there was notable variation in the time spent in particular HRR zones during the 'activity time' element. In the activity component of these lessons a large amount of lesson time (41 ± 5.4%) was spent participating in vigorous activity and a comparably small amount of lesson time was spent participating in light activity (10.5 ± 4.4%)

**Figure 6a:** The proportion of time spent in each HRR zone **during the entire lesson** (Values are X ± SEM)

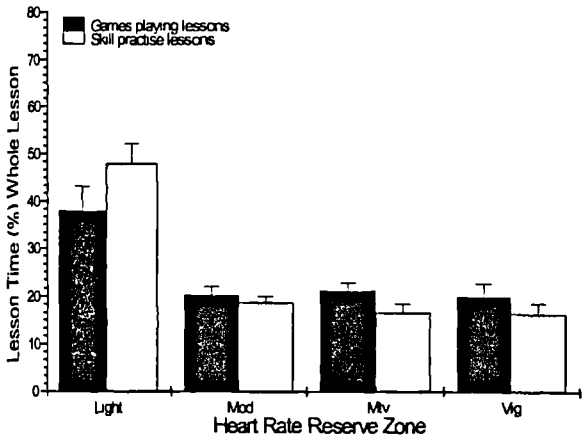



**Figure 6b:** The proportion of time spent HRR zone **during the warm-up only** (Values are X ± SEM).

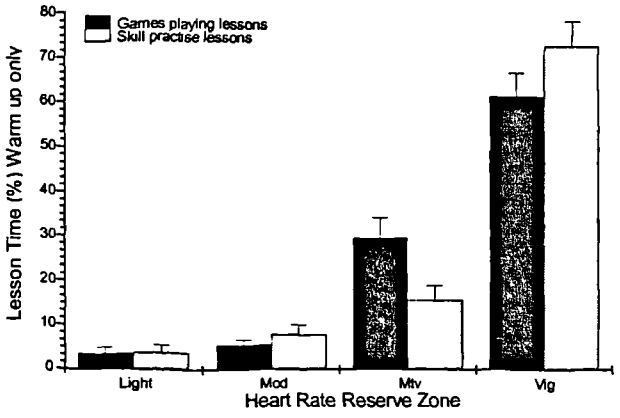



**Figure 6c:** *The proportion of time spent in each HRR zone when the* ***warm-up is removed*** *(Values are X ± SEM)*

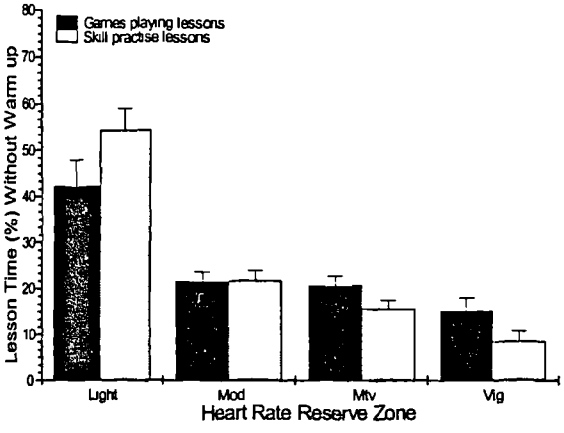
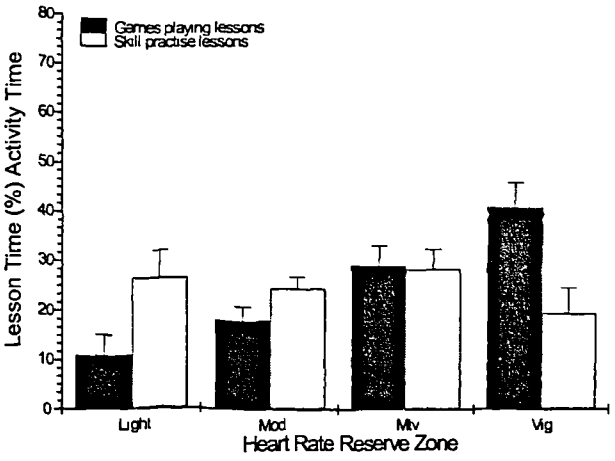



**Figure 6d:** *The proportion of time spent in each HRR zone for* ***activity time only*** *(Values are X ± SEM)*



'Physically active physical education'

As discussed in previous chapters, the benefits of participation in regular appropriate physical activity and the need to promote active lifestyles amongst young people have been emphasised within and beyond the physical education profession. Yet, the position of these agendas within the context of the NCPE and the everyday practices of teachers remains unclear. Below, I pursue the ways in which physical activity featured in the lessons observed and return to matters regarding the extent that physical education should be a context in which attention is directed towards particular levels of physical activity being experienced by pupils.

For the girls who participated in this phase of the research, the netball lessons contributed approximately 60% or 30 minutes of activity time towards the physical activity guidelines for young people (HEA, 1998). This finding is similar to that of Stratton (1997) who showed that 13-year old girls participated in moderate to vigorous activity for 58.5% of netball lesson time. This phase of research also found that within the netball lessons the girls spent a similar proportion (approximately 20%) of the time in each of the moderate, moderate to vigorous and vigorous HRR zones. In contrast, previous studies have found that during physical education lessons pupils spend less time participating in higher intensity activity than activity of lower intensity (Klausen, Rasmusen and Schibye, 1986; Mota, 1994). The girls who participated in this phase of data collection experienced greater amounts of vigorous activity than previously reported in physical education (Stratton, 1996a, 1997). The vigorous nature of this activity participation in the lessons brought to the fore important pedagogical issues in relation to teachers' understandings of calls for 'physically active physical education' and the various ways in which these calls are reflected in practice.

In considering the findings it is again important to address the specific sample and context used in the study. Certainly, it should be recalled that the girls were enthusiastic and able participants in the netball lessons and clearly, this is not the case for all pupils. Nevertheless, the findings reported above are similar to those discussed in phase one of the research where the eighteen girls (who were not all regarded as 'able and talented') experienced similar amounts of activity of moderate to vigorous

intensity as the girls in this subsequent phase of analysis. Within the context of the game of netball (and particularly considering those lessons identified as 'game play dominated') the positions that the girls played also needs to be noted. At the beginning of the 'game playing' periods the girls who participated in this research were assigned a playing position by their physical education teacher. This position was maintained for the duration of the 'game playing' time, but varied from lesson to lesson. In the light of this variation, the positions allocated are not regarded as having distorted the data as a whole across the unit. However, the analysis conducted pointed to a number of key characteristics of lessons and the teaching environment that could have a notable impact upon the physical activity levels experienced by pupils during physical education.

Warming up: How, for what and why?

The NCPE statutory requirements expect children to experience and understand how to prepare for participation in a variety of activities (DfEE /QCA 1999). Harris (2000) provides further guidance in terms of the form that this experience should take and what pupils should know and understand about warming up. Harris recommends that by the end of year seven pupils should be able to 'understand the value of preparing for and recovering from activity and the possible consequences of not doing so and be able to explain the purpose of each component of a warm-up and cool-down' (p. 47). Warm-up activities should be progressive and of a relatively low intensity so as to prepare the pupil for the forthcoming lesson. They can also serve to introduce or reintroduce pupils to movement patterns that will be subsequently required in the forthcoming lesson (Harris, 1998b). For example, in netball this could entail the use of footwork, turning and movement in specific space constraints similar to the demands and context of the full game.

In the lessons recorded in this research the warm up consisted of a short period of teacher led static stretching exercises before a cross-country running activity around the school playing fields. Stretching prior to physical activity has been questioned (Knudson, 1999). Instead, it is suggested that a warm up should feature a gradual increase in intensity to increase muscle temperature, with stretching occurring during

a cool down (Knudson, 1999). In my research the cross-country run aspect of warming up was the most vigorous component of the netball lessons. The nature and intensity is certainly open to question given the view that physical activity does not have to be strenuous for health benefits to arise (HEA, 1998; Riddoch and Boreham, 1995) and that vigorous activity may have a negative effect on many children's enjoyment of physical education lessons (Harris and Cale, 1997). Such practices illustrate the dangers previously voiced by Harris and Cale (1997) that teachers may perceive calls for 'more active' physical education as a call for a return to practices in which pupils are 'forced' into uncomfortable exercise. My research drew attention to the need for physical education teachers to be aware that 'activity promotion' should not be seen as requiring a return to physical training, and nor should it be regarded as being solely concerned with increasing physical activity levels during physical education lessons. Such an interpretation 'serves only to simplify the complex nature of physical activity promotion and overlooks the multifaceted nature of exercise education' (Harris and Cale, 1997, p.61).

The level of activity experienced in the netball lesson warm-ups clearly raised questions about the degree to which the value of *moderate* activity is being recognised by the teacher involved. While the cross-country run 'warm-up' promoted high levels of physical activity, it seemed in danger of exhausting pupils prior to the lesson, rather than preparing them for the lesson. In turn, this may have decreased the pupils' interest in the lesson activity and their potential for learning throughout the lesson. The educational value of the cross-country run in the context of netball can also be questioned. The use of a warm-up that relates more directly to the main lesson aims, themes and activities, and that gradually prepares the pupils' muscular and cardio-respiratory systems for participation in the forthcoming lesson should be encouraged. However, in this instance the use of a running activity needs to be viewed in the light of the other, and not necessarily compatible aims, being pursued by the physical education teacher at this time. Further investigation of the format adopted for the warm-up activity revealed that preparation for participation in the netball lesson was not the physical education teacher's sole objective. Rather, this element of the lesson was also being utilised as a selection 'race' for inter-school athletic fixtures! Clearly, there are tensions between the aims of preparing pupils for the netball lessons and

selection for school fixtures, and these were directly reflected here. The difficult and constrained contexts in which physical education teachers strive to provide breadth and balance and 'juggle' different agendas in an attempt to realise the diverse aims of physical education were all too apparent. Equally apparent was the way in which discourses of sport and performance were shaping practice. Practice seemed embedded within historical conceptualisations of 'fitness for performance' where discourses associated with improving individual physical fitness through participation in sustained periods of vigorous activity were privileged (see chapter 2). Thus discourses associated with elite sport and performance were afforded greater status than educational discourses relating to knowledge and understanding of appropriate levels of activity and forms of movement for the purposes of warming up for participation and performance in netball. Informal discussion with members of the physical education department revealed that in addition to the cross-country running activity being used as a 'warm-up' and as 'team selection' it was also intended to contribute towards the pupils' levels of 'fitness'. This most active aspect of the lesson was perceived by the teacher as 'getting the activity out of the way' prior to 'getting on with the lesson proper'. The lower status of physical activity relative to other interests and the absence of discourses associated with more holistic interests of health and lifelong participation was thus noticeable, as was the seemingly narrow view of 'physical fitness' being reflected in practice. For Penney (1998b), 'it is only when we embrace a definition of fitness that serves the interests and needs of both sport and health that we will see PE engaging with both of these communities and meeting lifelong needs and interests of students' (p. 122)

In endeavouring to meet multiple expectations in increasingly limited time (see Warburton, 1999; Harris, 1994a) there may be a tendency for teachers to feel that getting pupils active and keeping them active is a priority. How to promote an active and healthy lifestyle and provide opportunities for all pupils to experience appropriate levels of physical activity, whilst simultaneously facilitating the realisation of (and certainly not compromising) other objectives of physical education and the NCPE, are issues deserving debate. These were matters that provided a focus for subsequent phases of the research presented in this thesis and that are pursued in the forthcoming chapters. Undoubtedly, managing physical education lesson time to include physical

activity and to encourage a desire to be active is a particular challenge for physical education teachers.

Games, skills and physical activity levels

A further issue to clearly emerge from phase two of the research related to the respective emphasis given to 'skill practice' and 'game playing' in the lessons, and the implications of the emphasis taken upon the activity levels experienced by pupils. At this point it is appropriate to reflect upon recent developments and debates within and beyond the profession in relation to the provision of games in physical education and in particular, how that provision should be structured. While the provision of games within physical education and the NCPE particularly has been one of open privilege and dominance, different views exist in relation to how games should be taught. During both the 1980's and 1990's the respective merits of 'traditional' (technical and skills orientated) and 'understanding' (tactical/strategic orientated) models of games teaching have been debated (See discussion below). However, research focusing upon different models has been limited, and attention has tended to be directed towards the effectiveness of the different approaches in relation to pupil development of skill mastery and strategic knowledge rather than the physical activity levels featuring in or promoted by the different approaches. Stratton (1997) has suggested that 'invasion type' games lessons have the potential to contribute particularly effectively towards physical activity guidelines when compared to other areas within physical education. However, the impact that different teaching approaches will have upon the levels of physical activity attained by pupils within invasion game settings needs to be acknowledged. Undoubtedly there are equal dangers in referring in generalistic terms to 'skill' or 'game play' approaches. With either approach there is tremendous scope for variation in the levels of physical activity that will be experienced and the aims that will be fulfilled in physical education lessons. For example, a 'game play' focused lesson that primarily uses a full game format may result in very different physical activity levels to a 'game play' lesson that centres upon the use of small-sided games. The data arising in this research needs be considered in the light of these potential variations and ongoing debates in physical education. Furthermore, in parallel with these organisational issues, it is important to recall and acknowledge the

high level of ability and enthusiasm of the six participants, and recognise Stratton's (1996b) identification of a positive trend between high ability pupils and greater time with heart rates in excess of 160 beats $min^{-1}$ in the context of some physical education lessons.

As indicated previously, the approach used by the teacher during the netball lessons in this phase of the research was regarded as largely 'traditional', characterised by direct teaching methods and game playing activities in 'full game' formats (played on a full size netball court with the girls experiencing different playing positions during different lessons). Although data was not collected for specific playing positions, it was observed that certain positions were clearly more conducive to active participation than others. Due to the restrictions embedded in the rules for netball, girls would often find themselves standing at one end of the court for extended periods of time when playing either goal-keeper or goal-shooter. Greater activity levels were permitted when playing a central role.

In contrast to the 'game playing' lessons (lessons 2, 3 and 6), the three 'skill practice dominated' lessons (lessons 1, 4 and 5) were characterised by a highly structured lesson format. The development of control and technique was the clear learning priority, addressed via pupils practising, extending, refining and applying skill-based tasks. Practices were commonly organised with pupils in pairs or groups of four and included stationary or moving passing drills, footwork and shooting drills. The time involved in 'skill learning' was frequently intermittent and interspersed with regular periods of pupil organisation and instruction. Pupils spent considerable time lining up or waiting for a turn. In this respect the data that emerged from phase two is consistent with that of Curtner-Smith et al. (1996b) who observed that during lesson time devoted to learning skills a high proportion of time is spent listening or waiting. However, when considering the physical activity levels that may be attained in skill practice contexts there is a need to avoid generalisations and perhaps challenge assumptions about the form that skill practice may take. Strand and Reeder (1993) recommend that to improve activity levels during skill learning components of physical education lessons, physical education teachers should reduce time spent in 'teacher talk' during the explanation/demonstration phases. Others have suggested that

when adopting a 'traditional' approach to the teaching of games, the teacher should carefully consider the grouping and organisation of the practices, should attempt to minimise pupil 'managerial' behaviours and maximise pupil 'participation' behaviours to enable physical education lessons to contribute effectively to physical activity recommendations (Curtner-Smith et al, 1995c; Laker, 1994). The recommendations are that teachers should look to employ teaching strategies that feature the modification and adaptation of game situations to include smaller teams, restricted playing areas and rule constraints (Strand and Reeder, 1993).

Clearly, the physical activity data generated (and represented in Figures 5 and 6) needs to be viewed in the context of teaching and learning priorities and in this respect, observation showed that discourses of physical activity were marginalized, 'hidden', and/or absent in both the 'skill learning' and 'game playing' components of lessons. Not surprisingly, these lesson components were dominated by a concern to address skill development and game performance specific to netball. There seemed limited scope to address 'other interests', and specifically interests of health and physical activity in physical education in other than an implicit and ad hoc manner, certainly in what the teachers (and pupils) would see as the 'main' part of the lesson (i.e, after completion of the notably active warm-up). This phase of my research had thus confirmed the need for research to explore the ways in which the promotion of activity levels during physical education can be addressed in conjunction with and in the context of the pursuit of other learning outcomes.

The challenge for the subsequent phase of my work was to work collaboratively with physical education teachers and pupils, in seeking to generate guidance relating to the extent to which, and ways in which, physical education teachers should address physical activity in the context of their implementation of the NCPE. Furthermore, given the dominance of games in the NCPE, there was a strong case for retaining a games focus in the research. This latest phase of the research had also pointed to the potential value (and arguably need) for inquiry to also link with debates about varying approaches to the teaching of games. Questions such as which approach to the teaching of games may present the greatest potential to also facilitate pupils experiencing recommended levels of physical activity in lessons contexts, and

whether a 'games for understanding' approach offers notably more potential in this regard, were generated by the analysis undertaken. In contexts in which teachers are working with a skill-performance focussed text, is there scope to bring other (and specifically physical activity) discourses to the fore? In particular, is this possible in the dominant area of activity within the NCPE, and an area in which discourses of physical activity are seen as perhaps especially marginalized currently? It was these issues that my research now sought to explore, through direct engagement in teaching contexts, with teachers and pupils. As indicated in chapter 3, this demanded methodological shifts and a change in my position(s) as a researcher. Prior to describing in detail the further development of my research, it is necessary at this point to further discuss the complexities of games teaching in physical education and to reflect upon the flexibilities inherent in the NCPE for teachers to teach in various ways.

Teaching games: Approaches and Issues.

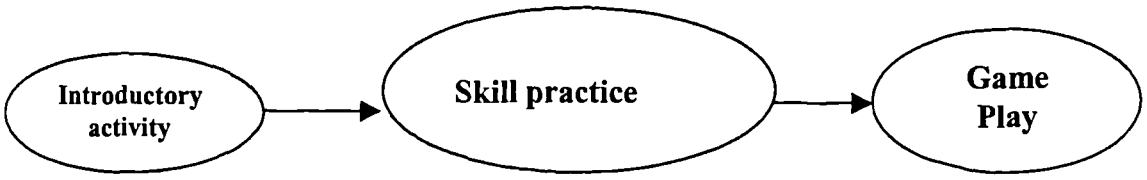
Waring and Almond (1995) have suggested that examination of the approaches teachers adopt in their teaching has 'created dissatisfaction with many practices in physical education not least the way in which games is taught' (p. 55). Previously, there have been calls for major revisions of the aims and objectives for games and a 'drastic rethink' of the way in which games is taught (Thorpe and Bunker, 1997). Dissatisfaction with the pedagogy and practice of 'traditional' or technique focussed approaches to games teaching gave rise in the 1980's to the emergence of an alternative 'technical' model for the teaching of games known as 'Teaching Games for Understanding' (TGfU; Bunker and Thorpe, 1983). As Waring and Almond (1995) have noted, TGfU was by no means a completely revolutionary innovation. Concepts, ideas and practices associated with TGfU can be seen in early English physical education texts (for example, Board of Education, 1933), although at this time there was no clear framework and development in practice was limited. Nevertheless, TGfU has come to be associated with a distinctly 'new' approach to the teaching of games. Without wishing to oversimplify the complex nature of games and games teaching, it has been commonplace for games teaching to be characterised as reflecting either a 'traditional' or 'understanding' approach.

A 'traditional' model of games teaching.

> 'Right – pay attention, we're going to do passing today.
> Give me the ball please.
> Watch – this is how we should pass the ball (explanation and demonstration of technique follows).
> In pairs one on that line, one of this, practice (sic) passing – go!
>
> (Butt, 1990, p. 11)

The above description of a teaching episode in physical education illustrates vividly practice commonly associated with a skills-based approach to teaching games. A 'traditional' model of teaching follows a series of highly structured lessons relying heavily on the teaching of skills and techniques (Werner, Thorpe and Bunker, 1996). The 'traditional' physical education games lesson is often one characterised by the inclusion of an introductory activity, followed by a focus on the teaching specific skills, a period of skill practice and a game situation (Figure 7).

Figure 7. A 'traditional' physical education lesson format




(Turner and Martinek, 1995)

This approach places the emphasis of instruction on the development and learning of physical skills rather than on understanding the dynamics of game play (Bailey and Almond, 1983). The basic premise of such an approach is through a focus on technique development and the mastery of skills, pupils will be able transfer these skills into a game situation. Yet, teachers have expressed concerned that this 'traditional' approach does little beyond developing a series of discrete skills that have limited chance of being used effectively within the authentic 'game' setting (Rink, French and Tjeedsma, 1996). Chappell (1990) contends that when skills and techniques are addressed in isolation and removed from the context of the game children are taught how to perform skills, but do not understand when, where and why to perform them in game situations. Bunker and Thorpe (1983) have also claimed that

the 'traditional' approach has led to many children achieving only limited success in games, many school leavers 'knowing' little about games, the production of supposedly skilful players who possess inflexible techniques and poor decision making, and the development of teacher-dependent performers. In relation to the latter point, it is notable that the 'traditional' model has come to be associated with, and lends itself towards, a didactic approach to teaching where 'the principal communication tends to be an address to the whole group rather than to individuals' (Waring and Almond, 1995, p. 60). Learning tends to be very clearly teacher-led and 'directed'. This learning is very clearly focussed upon the acquisition of skill, knowledge and understanding relating to the performance of specific activities. In Penney and Waring's (2000) view it reflects the privileging of discourses of elite performance and as such can be seen to represent a definition, direction and form of the subject that is 'invariably narrow, and that fails to engage with the educational needs and interests of many pupils' (p. 13)

In focussing attention so directly on skill acquisition the approach limits the visibility of other discourses. There is seemingly limited scope for discourses of, for example, health and physical activity, to come to the fore of teaching and learning. As the data presented above indicates, within a 'traditional' approach, physical activity levels are relatively predictable, and can be linked to specific aspects of the lesson (for example, the warm-up phase). Obviously, there is a need to acknowledge the variation possible within the 'traditional' approach, and in turn, recognise that differences will have implications for the physical activity levels experienced by pupils. These were issues that this research sought to pursue in the final phase of enquiry (see chapter 9).

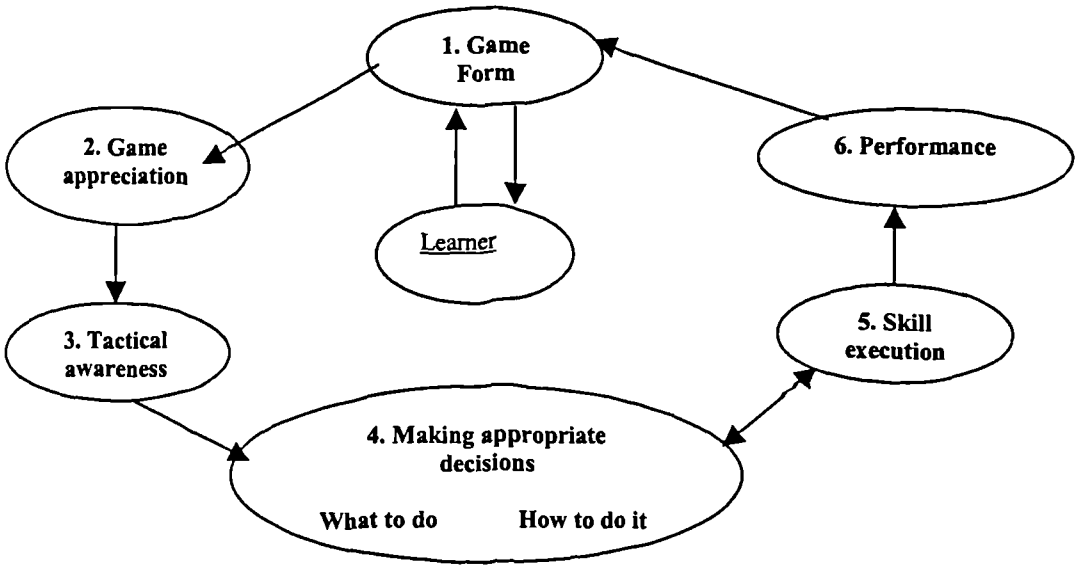
Teaching Games for Understanding (TGfU)

In contrast to the 'traditional' approach, in the 'understanding' model (Bunker and Thorpe, 1983) the game itself is seen as the centre of the learning process. The emphasis is primarily with developing decision-making qualities and tactical considerations. The learner is placed at the centre of the process that aims to progressively develop their competence in games in a more holistic manner. The use of modified game contexts, including alternative playing equipment, different rules

and playing areas are key strategies employed. Rather than the learning of skills and techniques being 'isolated' from the game, the understanding approach gives priority to the game form as the principal learning experience (albeit in an adapted form). Bunker and Thorpe (1983) outlined the framework for the model as containing six stages that centre upon the learner and begin with the game form itself (See Figure 8 below).

During the first stage pupils are introduced to a variety of game forms in accordance with their age and experience. An appropriate game situation can be constructed by adapting the playing area, the number of players and the playing equipment that presents pupils with the problems and decisions involved in game contexts.

Figure 8: The 'Games for Understanding' model




(Bunker and Thorpe, 1983)

Stage two emphasises that the learner should appreciate that the game presents problems to be solved and that pupils should understand the rules that place constraints of time, space, scoring and the skills required for the game they are learning. Alterations in game rules have implications for the tactics employed. Given some involvement and understanding of the rules, stage three suggests that it is necessary to consider the tactics to be used in the game, for example, player roles and responsibilities, ways of creating and denying space. The fourth stage emphasises differentiating between knowing what to do and how to do it. The nature of games

means that circumstances are continually changing and this change requires a process of decision-making involving assessment and action by the performer. For example, 'what to do' might involve moving to attack the space near the goal and 'how to do it' involves the selection of the appropriate response to attain the outcome successfully. The skill execution phase recognises the importance of skill, but only after the pupil understands the need for a particular skill within the context of the game itself. The production of the required movement is seen both in the context of the learner and their limitations in the game and as separate from performance (Bunker and Thorpe, 1983). During the performance stage, outcomes derived from the other stages, including appropriateness of response and efficiency of techniques, are assessed. This is evaluated against criteria independent of the learner.

Different discourses of physical education are arguably promoted within and come to the fore through the contexts of a TGfU model as compared with a 'traditional' approach to games teaching. More specifically, Penney and Waring (2000) contend that TGfU;

> Can be regarded as an initiative that sought to extend the legitimate knowledge and discourses of physical education, specifically by presenting suggestions for the development of 'alternative' emphases and approaches for the teaching of games.
>
> (p. 13)

Within the focus of a TGfU model are characteristics that represent a departure from the 'traditional' model and thus serve to challenge existing dominant conceptualisations of the most effective way for teachers to teach games and for pupils to learn games. In contrast with a 'traditional' approach TGfU privileges a more 'open ended' and 'discovery' style of teaching where problem solving and questioning are key aspects with according the learner centrality. The development of TGfU arguably embraced and promoted broader interests in and of physical education and sought to generate greater potential for the subject to engage with more pupils and thus extend what constitutes legitimate knowledge in physical education (Penney and Waring, 2000). Despite the potential of TGfU to promote discourses in physical education and games that were not solely technical and performance-based, Penney and Waring (2000) point out the ways in which these 'new discourses' have been

reinforced by, and remained marginal to discourses of performance. Specifically, they highlight that key elements of the TGfU approach are 'lost' through the practice in schools of interpreting and implementing a TGfU model as a 'foundation' programme for games prior to the development of units of games that continue to focus on performance pedagogies. Extension and promotion of alternative discourses in games through the TGfU approach has also been limited by the underpinning notion that facilitating the development of competent performance in recognised adult game forms remains the overarching and dominant concern of teachers (Penney and Waring, 2000). Penney and Waring (2000) contend that TGfU is illustrative of the scope for development of different discourses within the boundaries of thinking set by a particular pedagogy, however, this potential is subsumed by and marginal amidst an ongoing concern to focus on TGfU to achieve comparable skill development and performance outcomes as those met by a 'traditional' pedagogy.

But where and how does physical activity feature within a TGfU approach? To what extent does a TGfU model facilitate the provision of physical activity that is less teacher directed and teacher controlled than within a 'traditional' model? Arguably, the inclusion of physical activity is perhaps more unpredictable, yet potentially more pupil-centred, providing pupils greater degrees of physical activity responsibility, autonomy and independence. Certainly these were issues that subsequent phases of my research sought to pursue (see chapters 6, 8 and 9).

Conclusion

Within both of the contexts for teaching games presented above there will be differences in the realisation and inclusion of appropriate levels of physical activity. As previously discussed this will be dependent upon, and certainly influenced by, numerous contextual and pedagogical factors. The data arising from previous chapters has highlighted the need for the creation of a positive learning environment that provides opportunities for physical activity to be purposeful and fun, to be personalised and accommodate principles of differentiation, for activity to include tasks based on personal striving, and for activity to occur where pupils develop ownership of the learning process through doing, sharing and being independent (see

Almond and Harris, 1997). These characteristics were important considerations in shaping the direction of the research presented in subsequent chapters. In the next phases of the research I sought to engage with the complexity in further exploring the potential for the status and representation of discourses of health and physical activity to be raised in the context of teaching of games. In the research presented thus far, physical activity data has provided a focus for inquiry. Subsequent research sought to work with teachers and pupils as informed and collaborative 'participants' rather than solely as 'subjects'. The research was shaped by an interest in promoting physical activity in physical education, exploring ways in which particular levels of physical activity can be facilitated in games teaching, and raising pupil and teacher understanding and awareness of learning 'how' to be active in games contexts, and the compatibility of these aims with other interests in and of physical education.

## Chapter 6

## Physical activity, effort perception and physical education. Visions for physical education.

Physical activity, effort perception and physical education. Visions for physical education.

Thus far this thesis has identified the potential of physical education lessons to make a positive and effective contribution to the 'direct' attainment of physical activity recommendations, yet has also highlighted uncertainty with regard to the particular ways in which physical activity is, should, and could be included in physical education. The absence of agendas reflecting more holistic dimensions of physical activity that feature within HRE, and the privileging of discourses of physical activity associated with performance and fitness was particularly noticeable in the data collected in the early phases of my research. Although school based physical education lessons have been identified as making *some* contribution to target physical activity levels, physical activity policies are interpreted in diverse ways and opportunities for active participation in lessons are invariably limited. Mirroring other research (Harris and Cale, 1997) the previous phases of this research have shown that physical activity is addressed and included in physical education in varied ways, 'some of which may be considered less than desirable' (p. 60). We need to also recall that this variation exists in a context of physical education and the NCPE having multiple aims, and the NCPE giving 'mixed messages' in relation to the importance attached to health in the context of physical education, and the ways in which 'health issues' can and should be pursued in curricula (Harris, 1995, 1997a, 1998a). These 'mixed messages' generate tensions regarding priorities for teaching and learning in physical education, and specifically between concerns to address matters of 'fitness and health' while also promoting skill development in specific activities within the curriculum.

Thus in reviewing research evidence and findings from previous phases of my own data collection, a clear challenge for physical education teachers had emerged; how can teachers promote active and healthy lifestyles, develop sound knowledge and understanding of 'health' issues and provide opportunities for all pupils to experience appropriate levels of physical activity, whilst simultaneously addressing other learning objectives of physical education and the NCPE? What pedagogical approaches or teaching strategies are available that have the capacity to advance children's understanding of these issues in an 'active way' and more specifically, enable them to

monitor their own activity levels and equip them with the knowledge and understanding to participate in physical activity that is appropriate for them? How can this be done in an 'integrated' manner in physical education, so that understanding of activity and engagement in appropriate levels of activity is consistently developed in physical education lessons- and not only when they are identified as 'HRE' or 'HRF' lessons?

Addressing such integration demands, amongst other things, that we engage directly with children's understandings of and abilities to self-monitor, and self-regulate their own levels of activity, in various (and often unpredictable) activity settings. Green and Lamb, (2000) have recently expressed the challenge facing physical education teachers in relation to the promotion of desirable and appropriate levels of physical activity in physical education that contribute towards physical activity guidelines (HEA, 1998) for young people as one concerned with;

> How best to incorporate such recommendations into the breadth of activity areas in the physical education curriculum in a manner that meets the requirements for EKSD whilst, at the same time, being practical to deliver by teachers in more fluid and potentially complex physical education settings than the gym.
>
> (p.92)

In their suggestions of a how to create a positive learning environment for activity, Almond and Harris (1997) point to the need for physical activity to be personalised and for teaching and learning to adopt styles which accommodate variety and diversity. Furthermore, these authors argue that physical activity should involve young people in learning to acquire independence in their pursuit of activity goals. Incorporating teaching young people the necessary knowledge, understanding and skills to be able to exercise independently and at their own pace continues to feature in 'official' curricula texts (DfEE/QCA, 1999) and HRE guidance material (Harris, 2000). Mckenzie (1999) has argued that teaching pupils *how* to be active is likely to be more productive, in terms of those pupils choosing active rather than sedentary lifestyles in childhood and adulthood, than teaching them *why* they need to be active. In guiding young people towards being able to exercise independently teachers should be aware not only of recommendations relating to what type and how much physical activity is desirable, but also need to critically reflect upon *how* they might physically involve their pupils in appropriate levels of activity.

A number of methods including self-report, observation, heart rate monitoring and movement counters have been identified as effective research tools for the measurement of physical activity, yet the issue of how physical education teachers and their pupils might monitor physical activity in lessons has been given limited attention (Cale, 1998). There is growing evidence in support of physical education lessons that are concerned to pursue the promotion of participation in lifelong physical *activity* as compared to previous tendencies to focus upon physical *fitness,* (Harris, 2000). Thus, it would seem desirable to explore the potential for, and capacity of, approaches for teaching and learning that seek to address physical activity levels within the active contexts of physical education. The development of work focussing upon the concept of effort perception (or perceived exertion) therefore seems a positive new line of enquiry directing attention in teaching and learning on lifelong agendas for participation in health-enhancing physical activity. Green and Lamb (2000) have argued that the use of effort perception may be a potentially useful concept and focus in seeking to develop teaching and learning associated with HRE concepts throughout different activity areas. They argue 'it seems reasonable to suggest that the ability to identify and estimate the levels of one's exertion (via perception of effort) may be a particularly useful skill for teachers to teach and for pupils to learn' (p.92). Below I address the potential utility of effort perception as a means of effectively reaching and promoting appropriate physical activity within physical education curricula.

Learning about activity in active contexts: Effort perception in physical education

The notion of effort perception being applied in school settings is certainly not new and was first described by Eston in 1984. Eston (1984) referred to the use of effort perception to influence the activity patterns of children through providing an understanding of the body's responses to exercise. More specifically, he addressed the ways in which children might refer to perceptual cues to help them gauge exercise intensity through developing their conceptual understanding and thus 'learn' how it feels to exercise at 'optimal' intensities. Yet, for Eston (1984) 'optimal' intensities referred to those associated with bringing about improvements in the efficiency of the cardiovascular and muscular systems that featured largely in recommendations of the time for physical activity in adults (ACSM, 1978) and subsequently also reflected in

recommendations for children (ACSM, 1988). When considering the context of physical activity in the school and physical education lessons Eston (1984) stated;

> With the assumption that a cardiovascular fitness component is an important factor within the physical education curriculum, the physical education teacher must incorporate the principle of 'overload' for each child.
>
> (p.19)

Of greater significance here is Eston's comment that;

> Subjective measures of exercise intensity can be used to complement the use of objective measures of exercise intensity in the endurance component of the secondary school physical education programme. It may be possible to teach an 'awareness of effort' accompanied by better understanding of the more objective measures of exercise intensity. If the child can learn 'how it feels' to maintain a certain pace that is shown to be able to be above the point at which a training stimulus is believed to occur, the feedback control will enable the child to monitor a physiologically beneficial pace, compatible with the demands of the activity.
>
> (p. 22)

An important issue to reflect upon here is that although this original recognition of the potential of effort perception in physical education is somewhat compatible with the aims of the research presented in this thesis, notable differences exist concerning what is considered as 'appropriate' physical activity in physical education. The privileging of discourses associated with performance and notions of improving fitness that posses a distinct physiological bias are reflected in Eston's (1984) suggestions, can also be located historically amidst a prevailing HRF focus of the time, centring upon the inclusion of vigorous physical activity designed to enhance fitness (see chapter 2). Although Eston (1984) implies the conceptual and educational value of effort perception to promote pupil learning about 'how exercise feels', and why and what type of exercise promotes health, his suggestions for lesson planning and delivery feature a focus on the implementation of vigorous physical activity in physical education lessons through running activities. Absent in, and overlooked by, the Eston's proposals was the scope for effort perception to express other more cognitive and holistic goals of HRE and physical activity promotion specifically. Here we should recall the more recent efforts made by Harris (1997, 2000) and others to promote the message that;

> HRE is much more than fitness for performance or fitness for sport. Rather, in contrast to a *physical training approach*, the objective should not be to force children to be fit in a limited period of time, but to provide them, including

> those who may never see themselves as competent achievers or who may even dislike sport, with the understanding, competence and confidence to want to be active in and out of school, both now and in the future.
>
> (Harris, 1997a, p. 185, emphasis added)

Penney and Chandler (2000) contend that physical education has great potential to facilitate 'self-directed and self-inspired' learning. Similarly, Cale and Harris (1998) highlight that the acquisition of knowledge and understanding in relation to exercise is a vital component of HRE and they recommend that it should be gained through experientially based programmes which combine theory and practice, in particular, 'these programmes should encourage high activity levels from pupils and *personal involvement in their own learning*' (p. 35, emphasis added). Arguably, the concept of effort perception can promote a focus upon pupil 'self-inspired' involvement in their own learning where learning about physical activity and how physical activity 'feels' takes place within the context of the activity.

Cale and Harris (1993) have described the potential difficulties that children may be faced with when trying to effectively understand how to exercise at intensities appropriate for health benefits. However, they point to the potential of HRE and particular concepts within it that include;

> ...the teaching of such concepts in an active, experiential manner permitting pupils to monitor their heart rate and to be aware of when they are exercising within appropriate range. This information, linked with knowledge of perceived exertion (e.g., exercising at a level which makes you 'huff and puff' or which 'feels fairly energetic') will help children and young people to make appropriate judgements about exercise intensity.
>
> (p.94)

Although the potential value of children's ratings of effort in promoting appropriate physical activity levels and providing children with an understanding and cognitive awareness of activity has been recognised, the concept has yet to be *applied* within the physical education profession. Recently, Green and Lamb (2000) and Penney and Yelling (2001) have strengthened the case for the use of effort perception in their arguments for ways in which the concept might be incorporated as a tool for the delivery of aspects of HRE within the NCPE. However, the challenge of how to achieve this in practice remains. What exactly is effort perception and how can it be utilised practically in 'real life' contexts of physical education in schools? Can it

foster the learning and behaviours that are desirable in terms of developing understanding of physical activity and being physically active, whilst also enabling other learning objectives to be addressed and fulfilled?

What is effort perception?

Noble and Roberston (1996) define effort perception as the act of detecting and interpreting the sensations arising from the body during physical exercise. The concept was initially inspired and developed by Gunnar Borg in his work on psychophysical scaling and with colleagues in their early investigations of perceptual judgements of effort during cycling (Borg and Dahlstrom, 1960). Knowledge gained from these experiments and subsequent studies (see Borg, 1998) resulted in the construction of the Borg RPE scale that was used to establish reliable and valid estimations of effort perception (Borg, 1970, 1985). The development of this effort perception scale enabled an individual to assess the overall feelings of physical exertion and also to differentiate between central or local exertion (Ekblom and Goldberg, 1971). The application of perceptions of effort using the RPE scale has subsequently received much research attention in laboratory and field settings (see Noble and Roberston, 1996). It has generally been observed that ratings of exertion measured during a controlled exercise test increase as the intensity of exercise increases (Eston and Lamb, 2000). Typically, relationships between RPE and measures of exercise intensity have been derived using either 'rating' (or 'estimation') and 'regulating' (or 'production') procedures (Kinsman and Weisser, 1976). During 'rating' an individual is required to provide a rating of perceived exertion to indicate how 'hard' activity feels. During a 'regulation' protocol an individual is required to use their perceptions of effort to try and match the intensity of their physical activity to a series of pre-specified RPE values.

Research pioneered by Oded Bar-Or in the 1970's sought to explore the use of the RPE in children and reported that children reported higher RPE's with increasing exercise intensity, yet when compared with adults they tended to provide lower RPE's for a given relative exercise intensity (Bar-Or, 1977). However, more recently, the application of the RPE scale and its practical suitability for use with children has been questioned (Lamb and Eston, 1997; Williams et al, 1994). More specifically, Williams

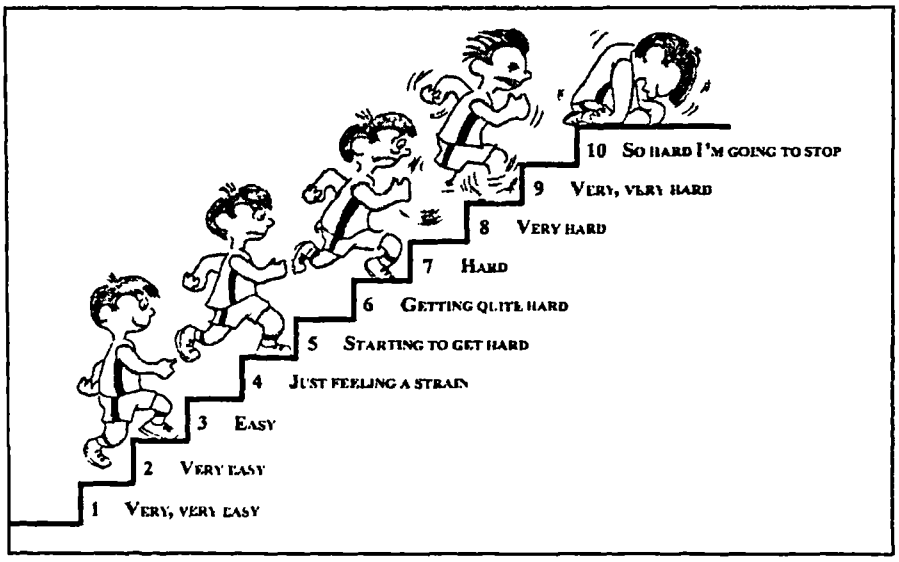
et al. (1994) have reported that young people are particularly puzzled by both the wording and the range of numbers used in the RPE scale and have suggested that although the idea of the RPE scale might be assimilated by children, a child-specific version would be more meaningful. In recognising the methodological and cognitive limitations of adult-formatted effort perception scales, researchers of effort perception in children have integrated more meaningful child-specific verbal descriptors of effort levels alongside numerical indicators to describe different exercise intensities (Williams et al, 1994 Children's Effort Rating Table). To promote further conceptual understanding of the effort continuum to children it has been suggested that pictorial scale descriptors would make effort perception scales more meaningful (Noble and Robertson, 1996). This realisation has lead to the recent development of some pictorial child specific rating scales (Cart and Load Effort Rating Scale, CALER, Eston et al, 2000; The OMNI scale, Robertson et al, 2000; See also Eston and Lamb, 2000). These effort perception scales have been designed primarily for use within laboratory setting and the potential of these scales or more suitable alternatives within practical contexts and within physical education specifically remains a matter requiring further research.

A new effort perception scale for young people

As I have previously demonstrated, possibilities for effort perception to help children and young people interpret, understand and monitor physical activity and feelings of exercise in physical education have been suggested (Cale and Harris, 1993; Green and Lamb, 2000; Harris 2000) yet this idea remains largely unexplored. We have few insights into how practically, within the context of the physical education curriculum, a focus on effort perception can facilitate the development of skills, knowledge and understanding relating to physical activity levels. In this respect, an integral aspect of the phase of research reported in this chapter therefore features the development of a new pictorial scale of effort perception designed specifically for use with young people in practical settings. The Pictorial Children's Effort Rating Scale (PCERT) that I developed at this point in my research is presented in Figure 9. Scale development and validation procedures have recently been published and the paper is provided in Appendix C.

After the development of the PCERT in a 'controlled' setting (see Appendix C) I was concerned to explore the use of the PCERT in 'real life' physical education lesson contexts. During this work it was necessary to engage with the complexities of teaching and learning in physical education that this development of the research would need to acknowledge and accommodate. In the forthcoming section (and subsequent chapters) I expand upon the use and potential of the PCERT within the complex teaching and learning environments of physical education, and specifically games lessons.

Figure 9: The Pictorial Children's Effort Rating Table




Case study investigation of physical activity and effort perception

The culmination of findings emerging from previous phases of work served to impact upon the key questions identified and issues addressed in the final phase of my research. This phase (that was the greatest in terms of the extent of my involvement and the data collected) was concerned firstly, to address the application of effort perception using the PCERT in physical education context, and secondly, to address further pedagogical aspects and broader issues concerned with physical activity levels and perceptions of physical activity in physical education lessons. It therefore sought to;

- further investigate physical activity levels during physical education by focussing enquiry upon young people's perceptions of physical effort,
- explore and develop teachers' knowledge, understanding and application of children's ratings of perceived effort within physical education and to further the development of the teaching of 'health' in contexts of physical education;
- address the pedagogical value of the PCERT within physical education contexts, and specifically, its potential role in promoting awareness and understanding of appropriate levels of physical activity, and abilities to 'regulate' these levels in 'real' and unpredictable activity contexts;
- thereby contribute towards the development of pedagogical strategies that increase the contribution that physical education can make to the realisation of physical activity recommendations; and
- in theoretical terms, to explore the ways in which and extent to which 'new messages' promote a different 'voice' in and of physical education privileging discourses of physical activity, health and lifelong learning.

These concerns were reflected in the following research questions that were pursued in this phase of the research;

- How effectively can young people use their perceptions of effort, as expressed using PCERT, to 'rate' how hard they are exercising (their physical activity level) during physical education, and specifically games lessons?
- How effectively can young people use their perceptions of effort and specifically PCERT ratings to 'regulate' their physical activity level within physical education lessons, and specifically within the context of games lessons?
- If children's effort ratings and the PCERT are to be effectively utilised during physical education to further knowledge and understanding about appropriate levels of physical activity and to teach children to recognise and understand these levels during physical education, what are the pedagogical implications for the design and delivery of physical education lessons and the implementation of the NCPE specifically?

Below I explain various stages of development and issues particularly relevant to this phase of the research.

The case study schools: context and access.

Given my concerns now to explore physical activity within 'real life' physical education lessons complete with their inherent problems, uncertainties and challenges, this phase would therefore be school-based. To retain continuity with previous work, data collection focussed on teachers and pupils from key stages two and three (year 7 and year 10). I also chose to retain a focus on games contexts, and specifically used a unit of work for games to explore (and actively seek to influence) the complex relationships between, and expression of, physical activity levels, physical education and the NCPE. The contrasting teaching approaches and strategies that had been evident in previous phases were used to inform and develop this final phase of my work.

This phase of my research took place in two school sites in 'Flatfordshire', one upper school, 'Greensands' and one middle school, 'Forestside'. Geographical location, size and type of school, time-tabling of physical education lessons, and availability and willingness of school physical education staff were all factors informing the choice of research sites. Access to the upper school was gained in previous research, whilst access to the middle school was obtained via a written approach outlining the proposed research and inquiring about interest and willingness to be involved that was sent to the physical education departments of three middle schools[1]. The two schools were situated in neighbouring urban districts of Flatfordshire. The middle school was within the upper school catchment area and acted a 'feeder' school where the majority of pupils progressed from year 8 of the middle school to year 9 of the upper school. This arrangement permitted effective liaison between teachers and myself in both schools, as both departments were familiar with each other's staff and physical education provision. In Table 7 below I outline some characteristics of the two schools. In Chapters 7 and 8 I describe the schools and specifically their physical education provision and staff in greater depth.

[1] From these schools one school declined to participate, one school was used during the pilot study stage (see below), and one school was recruited for the final phase of my research.

Table 7: Case study school characteristics

| | Greensands | Forestside |
|---|---|---|
| Number of pupils on roll | 1434 | 708 |
| Total number of teaching staff | 85 | 36 |
| Full time specialist teachers of physical education | 3 men, 3 women | 2 men, 2 women |
| Part-time specialist teachers of physical education | 2, 1 male, 1 female | 2 men, 3 women |
| Head of physical education | Mr Adam Atkinson | Mr Dave Hutchinson |
| Physical education teachers participating in the research | Mr Adam Atkinson (AA)<br>Miss Kate Apple (KA) | Mr Dave Hutchinson (DH)<br>Ms Susan Howe (SH) |
| Number of years teaching | AA: 24 KA: 6 | DH: 9 SH: 22 |

The pupils

To promote continuity with previous work, and to enable comparison across different National Curriculum key stages, four physical education class groups were chosen for study; one year 7 girls' netball class (consisting of 21 girls) and one year 7 boys' football class (consisting of 28 boys); one year 10 (GCSE) girls' netball class (consisting of 18 girls) and one year 10 (core) boys' football class (consisting of 17 boys). These selections provided direct continuity with previous work that addressed girls' netball (see chapters 4 and 5) and represented an important extension of my work to also embrace a games context (football) that is invariably experienced by boys of a similar age that is given considerable curriculum time in many schools. Timetabling and grouping issues in each of the schools unavoidably impacted upon research design and group selection at this stage. At 'Forestside' although year 7 physical education classes for boys and girls were timetabled at the same time, the year group was split into two with half the year timetabled for physical education on a Tuesday morning and half the year on a Friday afternoon. I arranged my physical education lesson data collection visits to coincide with the girls' lessons on a Tuesday morning and the boys' lessons on a Friday afternoon throughout the Autumn and Winter terms (see timescale below). Recruitment of groups at 'Greensands' was more problematic as the school timetabled all 'core' physical education lessons at the same time each week. A boys 'core' physical education group and a GCSE girls physical education group were therefore recruited. These two groups had timetabled practical physical education lessons at different times of the week. Further suitable times for

other aspects of data collection (for example, scale familiarisation, see below) were agreed with pupils and staff on a weekly basis at both schools.

Although all of the pupils in each of the class groups were involved in this phase of my research in some capacity, twelve pupils from each group were recruited for extended involvement in the research. This selection was influenced by the fact that I was restricted to the use of twelve heart rate monitors at any one time. I was cognisant that the selection of the pupils from within the class groups should reflect a range of ability and motivation for physical education. Purposeful sampling (Patton, 1990), informed by discussions with the physical education teachers, was used to identify twelve pupils with differing levels of ability and motivation within physical education[2]. I faced some difficulties with this process and acknowledge the limitations inherent in my choice of pupils. Again, pragmatics of the school contexts and procedures impacted upon research procedures. While physical education groups at Forestside were of mixed ability, this was arguably not the case at Greensands where the groups that it was feasible to involve in the research comprised pupils who had opted to pursue GSCE physical education (in the case of the girls), and pupils who studied physical education as a 'core' subject not involving formal examination (in the case of the boys). This had marked implications for the composition of the respective groups. The girls were largely able and motivated, whilst the boys group featured a greater variety of pupils, ranging from some able and interested boys, to boys who rarely brought kit to participate in the lessons, who regularly brought 'notes' excusing them from participation, and some who frequently chose not to attend the lessons at all. Given the need to ensure data collection throughout the unit of work I decided that boys who were largely absent from lessons and who failed to participate regularly could not be selected for participation during this phase of my research.

[2] A flexible agenda for these enquiries was established where each physical education teacher was asked to use their professional knowledge to place pupils into categories that focused on their 'typical activity' level in physical education lessons and specifically within games lessons. It is recognised that several factors will influence and be reflected in these levels, including pupils enthusiasm and ability for/in the subject. The categories used were; 1-highly motivated, enthusiastic and always active, 2-moderately motivated, enthusiastic and active, and 3-lacking in motivation, enthusiasm and activity. I used this information, and other pragmatic details, such as rate of attendance and participation to select 4 pupils from each of the three groups for participation in the research.

Children's physical activity levels and perceptions of effort during physical education lessons: A pilot study

The pilot study was undertaken as a small-scale explorative stage of the research process, designed to highlight potential weaknesses in study design, research procedures and implementation. Specifically, this stage of the research permitted the opportunity to trial and evaluate procedures, methods and approaches for data collection prior to subsequent use in case study schools. Details of the pilot study can be found in Appendix G. The pilot study revealed a need to ensure that the pupils were fully familiarised with the data collection procedures. The following issues were particularly highlighted; familiarisation with the operation of the heart rate monitors, reducing the 'novelty effect' of researcher and presence of the equipment, the significance of the instruction provided regarding how to respond to the PCERT scale (for example, by hand signals, written or verbally), the 'training' of pupils in how to 'use' the scale, and the planning of the lessons with (and by) the teachers. Below I detail the procedures for the data collection in the case study schools that the pilot study helped to inform.

Data collection methods and procedures

The curriculum activities chosen for study (netball and football) in each of the two schools began at the start of the Spring term (5.1.2000) and continued until the end of the term[3]. In preparation for this period of data collection preliminary procedures (see below) were completed during the second half of the previous school term. Table 8 below details the progressive development of this phase of the research.

[3] Ultimately, and unavoidably, some minor problems were encountered in relation to the completion of all the final data collection lessons as a result of staff absence or illness and (extremely) inclement weather. This necessitated the rescheduling of some lessons.

Table 8: The stages of data collection

| Stage | Detail |
|---|---|
| Stage 1:<br>Sept 1999 – Dec 1999 | Pilot study and preliminary procedures in the case study schools |
| Stage 2:<br>Jan 2000 – March 2000 | Physical activity and 'rating' during physical education lessons. A unit of 6 games lessons during which pupils' physical activity levels and 'effort ratings' were recorded |
| Stage 3:<br>March 2000 – May 2000 | Physical activity and 'regulation' during physical education lessons. A block of 4 games lessons where physical activity levels were recorded and pupils were asked to 'produce' different effort levels. Post data collection and evaluation procedures, e.g. interviews and focus groups. |
| Stage 4:<br>June 2000 onwards; | Data analysis, reporting and writing. |

Below I provide further details regarding each of the stages and the various methods and procedures used throughout these.

Stage 1: Preliminary procedures.

These procedures were completed in order to gain entry into the schools and establish effective relationships with key members of staff and pupils. This stage also served to familiarise the participants with the nature of the research and the data collection procedures.

Gaining informed consent

Approval from the head teacher of each school was obtained and I subsequently met with key members of the physical education department and all pupils to distribute information detailing study methods and procedures and to answer immediate questions (see Appendix H). Each teacher, the pupils (and their parents/guardian) were asked to sign an informed consent agreement to allow participation in the research (see Appendix E). These agreements were developed following guidelines suggested by Thomas and Nelson (1990) and David, Edwards and Alldred, (2001).

Each pupil also completed a pre-data collection medical questionnaire (see Appendix I).

Measuring and recording pupils physical activity levels

Consistent with previous phases of this research heart rate monitoring was used to explore the physical activity levels of the pupils throughout the lessons. The merits and shortcomings of this approach have been discussed elsewhere (see chapter 4). To enable the quantification of physical activity within the lessons, and in agreement with previous phases of this research, four heart rate zones that reflected pupil participation in different levels of activity were established. These zones were calculated using heart rate reserve (HRR) as light (50%HRR), moderate (50-60%HRR), moderate to vigorous (60-75%HRR) and vigorous (>75%HRR). HRR zones were based upon each pupil's maximal and resting heart rates established using identical procedures to those described previously in chapter 4.

Using the concept of effort perception: PCERT 'Training'

The pupils were introduced to the PCERT using a set of standardised scale procedures for scale application in practical settings. These procedures were developed using the recommendations suggested by Maresh and Noble (1984) regarding pre-exercise instruction into the use of effort-rating scales. This process included providing a definition of the concept of perceived exertion, explaining the nature and use of the scale, 'anchoring' the perceptual range in 'scale training' sessions, explaining differentiated ratings and the correctness of response and answering any questions. Examples of scale training procedures are provided in Appendix J.

Providing PCERT ratings during physical education.

The pilot study stage of this phase of research helped establish the method of obtaining pupil effort ratings that caused minimal disruption and interference to the continuity, flow and content of the lesson. An A4 mounted copy of the PCERT was shown to each pupil and I asked the pupils to provide a rating of their physical activity with the question, 'how are you feeling now?' at different times during the lessons. I

asked all twelve of the pupils to provide ratings during the same activity. Unit frameworks for each year group and activity for this phase of fieldwork were obtained from, and discussed with the physical education teachers. This helped anticipate the activities that were incorporated in each of the lessons and the most appropriate points at which pupils would be asked to rate their effort level. Specific activities within the lessons that were considered likely to give rise to different effort ratings were highlighted for pupil ratings, for example, after the warm up phase, during skill learning or game playing.

Data collection 'familiarisation' lessons

Two time-tabled physical education lessons for each of the class groups were designated 'protocol familiarisation' lessons. These were scheduled in the winter term prior to the commencement of the physical education lesson fieldwork and were intended to remove the 'novelty effect' associated with fieldwork procedures. They allowed both the teacher and pupils to familiarise themselves with the equipment and related procedures. These lessons were planned to allow the physical education teacher to know how to attach and position the wireless microphone and feel comfortable wearing it, to familiarise the pupils with lesson arrangements, such as the collection and return of heart rate monitors, and how to respond to requests to provide effort ratings at particular points during the lesson. Providing effort ratings was also practiced in previous PCERT training sessions, but not within the context of a physical education lesson.

Observation strategy and coding conventions.

Throughout this phase of the research I also used the computerised version of the Physical Education Teacher Assessment Instrument (PETAI, Phillips, Carlisle, Steffan and Stroot, 1986) to analyse pupil behaviour in each of the physical education lessons. This instrument permitted the recording of pupil behaviour in a number of different categories including time allocated to skill learning, time allocated to game playing and time spent engaged in behaviours associated with organisation and management. Below I provide a description of the behaviour coding categories that were used when observing the physical education lesson recordings.

Table 9: PETAI Coding categories and definitions: Participation behaviours

| Behaviour Category | Coding Definition |
|---|---|
| **Activity Behaviours** | **Time allocated to pupils participating in warm up and review skill learning time or game playing time** |
| **Warm up/review: (WU)** | Time pupil spends in 'warm up' activities or reviews previous lesson material. For example, running around pitches, engaged in drills that have been explicitly allocated by teacher as WU activity. |
| **Allocated Skill Learning Time (ASLT)** | Total time available to the pupils to learn, practice and develop skills. Comprising of:<br><br>**Engaged Skill Learning Time:** Time pupil uses in directly learning or practising skills. For example; passing drills in pairs or threes on the courts or grids.<br>**Non – Engaged Skill Learning Time (NESLT):** The time the pupil is not engaged in learning or practising even though the time has been allocated. This time is the sum of listening, assisting and waiting.<br>**Listening (NESLT-L):** Time the pupil is listening to instruction or directions or watching a demonstration of the skills to be learned. For example, listening to the teacher explain a particular drill activity.<br>**Assisting (NESLT-A):** Time pupil is assisting others in practising or reviewing skills. For example, feeding partner the ball<br>**Waiting:** Time student is waiting to practice or assist with learning a skill. For example, in a line waiting a turn in a passing drill |
| **Allocated Game Playing Time (AGPT)** | Time available to the pupils to play the game form.<br>Comprising of:<br>**Engaged Game Playing Time (EGPT):** Time pupil uses in performing a skill directly related to playing the game. Time spent directly participating in various forms of game play, either small or larger sided.<br>**Non-Engaged Game Playing Time (NEGPT):** Time the pupil is not engaged in performing skills related directly to playing the game even though the game is ongoing. Sum of NEGPT listening, assisting and waiting.<br>**Listening (NEGPT-L):** Time the pupil is listening to instruction or directions or watching a demonstration of the game to be learned.<br>**Assisting (NEGPT-A):** Time pupil is assisting others in practising playing the game.<br>**Waiting (NEGPT-W):** Time student is waiting to execute a skill in the game. For example, when the ball is completely at the other end of the field and there is no involvement, when the ball goes out of play and during restarts. |
| **Total lesson time spent listening (TLT)** | The sum of NESLT–L and NEGPT–L |
| **Total assisting time (TAT)** | The sum of NESLT-A and NEGPT-A |
| **Total waiting time (TWT)** | The sum of NESLT–W and NEGPT–W |

Table 9 (cont): PETAI Coding categories and definitions: Managerial behaviours

| Behaviour Category | Coding Definition |
|---|---|
| **Managerial Behaviours** | **The time the pupil is engaged in class organisation, not directly related to skill learning time or game playing time.** |
| **Beginning / Ending class (BEC)** | Time pupil takes to start and finish the class. Recorded time should reflect the actual scheduled class time. For example, lining up or registering. |
| **Equipment Management Time (EQPM)** | Time the pupil uses to obtain, set up, and return equipment. |
| **Organisation (ORG)** | Time the pupil uses to organise for ASLT or AGPT in individual or group organisational activities. For example, setting up teams, devising practices, organising playing areas. |
| **Behaviour Management (BEHM)** | The time the pupil is engaged in unapproved behaviours or fails to be engaged in expected behaviours. For example, off task behaviour, talking with others during practice or game, or misbehaving. |
| **Other Tasks (OT)** | The time the pupil uses in tasks other that ASLT, AGPT or in specific pupil management time. For example, participating in activities not related to the skill learning activities of the lesson, getting a drink, taking a message. |
| **Total Management Time (TMT)** | Total time spent engaged in all managerial behaviours. (Sum of BEC, EQM, ORG, BEHM, OT) |
| **Total Available Activity Time (TAAT)** | Total lesson time available to pupils to be engaged in activity. (Sum of WU, ESLT, EGPT) |
| **Total Non Available Activity Time (TNAAT)** | Total lesson time where pupils did not have the opportunity to be activity involved in the lesson. (Sum of NESLT, NEGPT, BEC, EQM, ORG, BEHM, OT) |

Systematic observation provided an important means of 'locating' various activity levels of pupils and complemented the findings of earlier research that revealed notable differences in levels of physical activity in different elements and at different points in lessons (see chapter 5). The observation strategy for observing the physical education environment demanded that I undertake a period of observer training and establish observer reliability. Details of the procedures I undertook to establish reliability are provided in Appendix K. Each physical education lesson observed

(thirty nine data collection lessons in total) was videotaped and during subsequent viewings the rule of 51% was used to determine the pupil behaviour in the lesson. With this observation strategy the observer makes a coding decision based upon the behaviours of the majority (>50%) of the pupils in the class and codes the behaviour accordingly (Curtner-Smith et al, 1996a).

Stage 2: Rating physical activity levels in physical education lessons

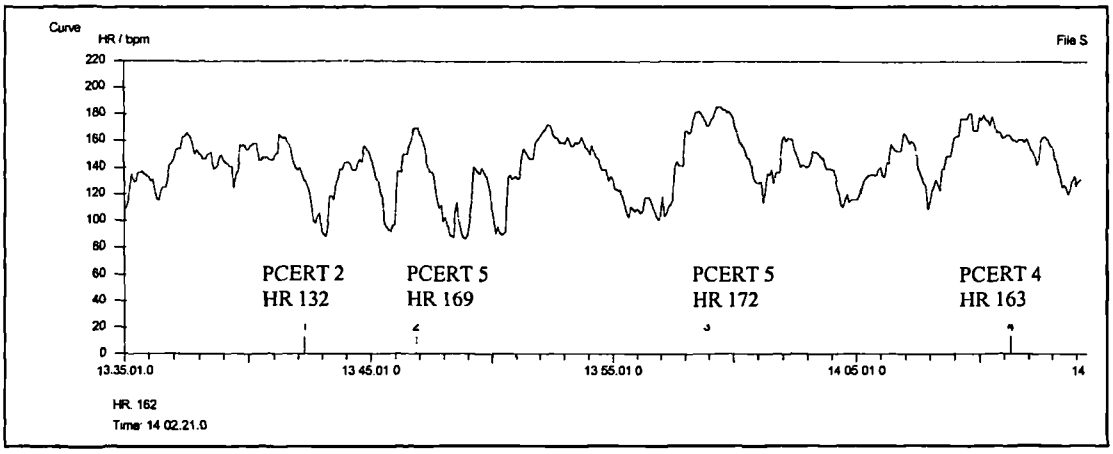
Recording physical activity

The twelve pupils selected from each of the four physical education classes wore a heart rate monitor set to record their heart rate responses every 5s throughout the duration of the physical education lessons observed in this phase. To maintain consistency with previous phases of my research, the amount of actual lesson time and the percentage of lesson time that the pupils spent in participating in physical activity of four different intensities; HRR zones; light (<50%HRR), moderate (50-60%HRR), moderate to vigorous (60-75%HRR) and vigorous (>75%HRR) was determined. This physical activity data was subsequently 'matched' to the pupils' perceptions of physical activity using their PCERT ratings (see below).

Recording PCERT ratings

The twelve pupils were asked to rate their activity levels using the PCERT at various instances during their physical education lessons. For example, upon starting and finishing the warm up activity, during different skill learning activities and during game playing activities. The pupil's identity, their rating and nature of the activity context during which the rating occurred was recorded (an example of this recording sheet is provided in Appendix L). Immediately after providing a rating the pupils were asked to depress a button on the heart rate monitor that inserted a numerical indicator on the heart rate time curve corresponding with the time the effort rating was given. In Figure 10 below I provide an example of a heart rate time curve from one physical education lessons with the PCERT ratings and corresponding heart rates shown.

Figure 10: PCERT and physical activity (heart rate) during physical education




For all lessons pupils PCERT ratings were subsequently compared with the physical activity level (as measured by heart rate) during the specific lesson element within which the rating was assigned. This information was obtained by identifying on the heart rate time curve the specific instances at which each PCERT rating occurred (for example, the numerical indicator at the end of the warm up) and linking this to the corresponding heart rate extrapolated from the heart rate curve. The limitations of this approach in terms of delay in other factors (for example, emotional state) affecting heart rate have been discussed elsewhere (see Chapter 4).

Lesson context

No pedagogical interventions were introduced at this stage. Each physical education teacher was asked to teach the lessons according to their pre-planned lesson and unit format. This framework was not always wholly adhered to in the lessons and teachers modified and adapted some lesson content. In Appendix M, I outline the content of the football and netball lessons observed during the 'rating' lessons at both schools.

Recording pupil behaviour

Each lesson was videotaped to allow subsequent analysis of the lesson context and the specific participation and managerial behaviours engaged in by the pupils. To enable the recording of their verbal instructions the physical education teachers wore a

wireless audio microphone. The PETAI was used to code the amount of pupil participation in different lesson behaviours. I coded all the lessons (4 groups x 6 lessons = 24 lessons) using the behaviour definitions and coding conventions described above within two weeks of the observed lesson. I also made field notes for each lesson to supplement video recordings and act as a key reference point for identifying notable characteristics of specific lessons in relation to teacher and/or pupil behaviours. I made notes 'live' during the lesson observations and developed more detailed accounts in subsequent viewings of the lesson video recordings. These notes took the form of general descriptions of the lesson content, examples of teacher and pupil behaviour and responses during the lesson, and writing out exerts of teacher dialogue. Throughout this process I also engaged in critical reflection and recorded my own thoughts and feelings regarding the events that occurred in the lessons.

Findings from Stage 2: 'Rating' lessons

Physical activity 'ratings'

The pupils in each physical education class tended to provide ratings of their physical activity levels in the various lesson aspects that were within the low to middle range of the PCERT scale. As Table 10 below shows, PCERT ratings of 2, 3 and 4 were the most frequently assigned by all class groups. The corresponding heart rates, (representing a measure of the physical activity levels the pupils were experiencing at the time of assigning the ratings) indicated that the pupils from each of the classes were, to some extent, able to distinguish between the different levels of physical activity that they were experiencing. More specifically, increases in PCERT ratings corresponded to increases in physical activity (heart rate). However, it was also notable that in all of the groups heart rates were high in comparison to the PCERT ratings that were provided. The impression was that the pupils had a tendency to underestimate the intensity of their physical activity. In particular, the boys at Forestside frequently assigned low PCERT ratings given their correspondingly high heart rates. In contrast, heart rates observed for the girls at Greensands were lower than other groups at each PCERT rating. It was clear that many factors were influencing pupils' PCERT ratings within the physical education lessons. There was a need for further research and alternative methods to pursue the factors involved and

their various influences upon the ratings provided by the boys and girls in this research. Chapters 7, 8 and 9 discuss this further development of my work.

Table 10: Summary of pupil physical activity ratings and corresponding heart rates ($bmin^{-1}$) (Values are Mean ± SD)

| RATING | Forestside Boys | N | Forestside Girls | N | Greensands Boys | N | Greensands Girls | N |
|---|---|---|---|---|---|---|---|---|
| PCERT 1 | 131.8±16.6 | 10 | 130.1±21.3 | 12 | 133.0±26.1 | 6 | 122.1±20.3 | 17 |
| PCERT 2 | 147.2±13.6 | 70 | 140.8±18.6 | 38 | 145.5±15.3 | 25 | 129.8±17.3 | 70 |
| PCERT 3 | 161.9±12.4 | 75 | 162.3±11.2 | 61 | 157.4±13.9 | 38 | 146.8±18.9 | 70 |
| PCERT 4 | 174.9±9.5 | 52 | 178.9±11.8 | 77 | 171.9±14.3 | 35 | 160.1±13.9 | 44 |
| PCERT 5 | 182.2±15.0 | 15 | 190.0±9.2 | 22 | 185.4±11.7 | 14 | 177.2±7.7 | 10 |
| PCERT 6 | 190.5±17.7 | 4 | 207.0 | 1 | 185.5±8.4 | 8 | | |
| PCERT 7 | 195.0 | 1 | | | | | | |

Physical activity levels

At Forestside, both boys' and girls' physical education classes (football and netball respectively) contained over 50% of the lesson time with heart rates in excess of 50%HRR. In agreement with the findings of previous phases of this research (see chapters 4 and 5) these classes spent a high proportion of lesson time experiencing physical activity of moderate *to vigorous and vigorous in intensity (see Table 11* below). This was especially marked for the girls at Forestside who experienced almost 30% of their lessons in activity of vigorous intensity. Once again, these findings highlight the potential of physical education to contribute towards physical activity recommendations for young people. However, the particular contexts and specific lesson aspects that gave rise to these high levels of physical activity should be acknowledged. As I have previously demonstrated in chapter 5, and as was evident again in the results form this phase of data collection, despite eliciting high levels of physical activity not all pedagogical practices in physical education are desirable in terms of promoting active lifestyles. Indeed, certain practices have been shown to 'turn pupils off' being active (see chapter 4, chapter 8 and Harris, 1997a). As I pursue in my forthcoming analysis of pupil behaviours in physical education and in subsequent chapters (See chapters 8 and 9), physical education lessons at Forestside were characterised by a 'traditional' pedagogy. Engaging pupils in large quantities of physical activity during skill/drill practices that were designed to 'keep the pupils

active' to 'warm them up' or to promote 'fitness', rather than being undertaken with a clear focus upon pupil learning and/or skill/technical development, was a defining feature of activity provision at Forestside.

The boys at Greensands experienced similar amounts of physical activity during their football lessons as the pupils at Forestside (see Table 11). Over a quarter of lesson time was spent experiencing physical activity of vigorous intensity. These findings indicate that for the year 10 boys the physical education lessons observed met guidelines for active physical education classes (see chapter 4) and thus contributed towards recommended physical activity levels. As I subsequently address, the pedagogies visible in these lessons were significant in giving rise to particular levels of activity. The notable exception in terms of the physical activity levels attained within lessons observed at both schools, was in the case of the Greensands girls' GCSE class (see Table 11).

Table 11: Summary of pupils' physical activity levels in all 'rating' lessons (6 lessons per class, Values are Mean ± SD)

| | Tot.T | AvHR | MHR | Vigorous | | Mod to Vig | | Moderate | | Light | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | (mins: secs) | $bmin^{-1}$ | $bmin^{-1}$ | >75%HRR | | 60-75%HRR | | 50-59.9%HRR | | <50%HRR | |
| | | | | % time | Act.T(m) | % time | Act.T(m) | % time | Act.T(m) | % time | Act.T(m) |
| Forestside Girls | 43:16 ±04:07 | 152.2 ±7.5 | 195.0 ±2.9 | 29.5% ±11.3 | 12:34 ±04:09 | 27.9% ±4.8 | 12:05 ±02:48 | 16.5% ±2.6 | 07:10 ±01:31 | 26.3% ±12.4 | 11:32 ±05:17 |
| Forestside Boys | 42:45 ±01:59 | 151.5 ±4.7 | 193.0 ±3.4 | 22.2% ±6.7 | 09:23 ±02:28 | 34.3% ±2.9 | 14:41 ±01:38 | 19.2% ±3.0 | 08:13 ±01:21 | 24.3% ±4.5 | 10:27 ±02:13 |
| Greensands Girls | 41:22 ±04:54 | 128.2 ±3.5 | 178.3 ±1.5 | 7.8% ±2.6 | 03:17 ±0:59 | 20.5% ±2.6 | 08:30 ±0:38 | 15.1% ±1.2 | 06:16 ±0:25 | 56.6% ±4.4 | 23:18 ±04:38 |
| Greensands Boys | 37:24 ±02:40 | 150.6 ±8.4 | 193.1 ±7.7 | 25.6% ±11.4 | 09:35 ±04:22 | 28.1% ±2.0 | 10:26 ±01:17 | 18.3% ±3.7 | 06:45 ±01:12 | 27.7% ±9.3 | 10:30 ±03:23 |

This GCSE girls physical education group experienced the lowest amount of time in vigorous physical activity and the highest in light activity. On the one hand, this finding supports previous research that has shown a decline in activity participation during physical education lessons as pupils progress through secondary school, and that this decline is particularly noticeable in girls (see chapter 4). Yet on the other hand, and arguably of greater significance was the pedagogical approach and the nature of the learning that was promoted within this context. This was notably

different to that observed within the other physical education lessons at both schools. More specifically, the teacher adopted a pupil-centred approach to learning where the girls were given much greater choice and responsibility throughout the lessons. Typically, many features of the lessons were similar to characteristic of a TGfU approach. For example, questioning was frequently employed, and the girls were often asked to develop particular drills and practices and reflect upon their own and others performances in skill based and game based situations. Arguably, the learning priorities in the context of GCSE physical education were quite different to those emphasised in the 'core' physical education curriculum lessons. The contrast in priorities was especially notable at Forestside (see chapter 8).

Although the girls at Greensands may not have been as physically active as other groups, they did experience physical activity of appropriate intensity (with marginally over 50% of lesson time in light activity). Arguably this distribution of physical activity is more desirable, both in terms of the activity type and the learning promoted, than those activity levels reported for other groups where high amounts of vigorous activity were present. To contextualise the physical activity data further, it is necessary to explore the specific pupil behaviours that gave rise to the levels of physical activity experienced in each physical education class at both of the case study school. In this respect, below I pursue the PETAI observation of these lessons.

Pupil behaviours in physical education

Activity behaviours

When compared with other class groups the girls at Forestside experienced the largest amount of available activity time and were the only class where allocated time for activity represented over 50% of the available lesson time. For the girls and boys at Greensands and the boys at Forestside, warming up activities lasted for approximately 3 to 4 minutes, in contrast, more time was allocated to warming up in the Forestside girls group (6 minutes). This pattern was particular noticeable during my lesson observations, where warming up activities for the Forestside girls typically comprised a series of running activities with a particular emphasis upon being vigorously active. This approach to warming up mirrored my earlier research findings (See chapter 5)

and may certainly account for the relatively large amount of vigorous physical activity experienced by the girls at Forestside. It is important here recall the discussion from chapter 5 regarding the place and purpose of warming up in physical education. In Table 12 below I detail the actual lesson time and the proportion of lesson time that pupils spent in each of the pupil activity behaviours during the unit of 'rating' lessons.

Skill learning time dominated the physical education lessons at Forestside with over 40% of the lessons devoted to activity related to skill practices in both football (46%) and netball (42.6%). However, it is important to recognise that within this allocated skill learning time there was relatively limited time available for actual skill practice ('engaged skill learning time'). Rather, in both groups the pupils spent large quantities of time either listening to instructions or waiting. This was especially marked in the Forestside boys' class where for over one fifth of lesson time the boys were listening to skill related instruction. In contrast, allocated skill learning time was lower at Greensands, and particularly for the boys, where they experienced a relatively small amount of time in non-engaged activity.

The pupils at Greensands also participated in more game playing activities than pupils at Forestside (45.2% of lesson time for the girls, and 51.8% of lesson time for the boys as compared with 32.0% and 25.9% of lesson time for the girls and boys at Forestside respectively). A noticeable feature of the allocated game playing time in which the pupils were not actively engaged in playing the game was the relative proportion of time they spent listening to the teacher. Teachers at Greensands stopped the game more often and engaged the pupils in discussion and questioning. This resulted in nearly 5 minutes spent listening in game playing contexts at Greensands as compared with 1min 44s for Forestside girls and 2mins 02s for Forestside boys. Without wishing to simplify the complexity of the teaching environment, and acknowledging the importance of contextual, resource and pedagogical implications, these differences are largely attributed to the contrasting approaches to teaching physical education adopted by the teachers at the two case schools. More specifically, teachers at Forestside adopted what be regarded as a very didactic and 'traditional' pedagogy, with a distinct emphasis on delivering a variety of skills and practice, whereas teachers at Greensands, and especially within the context of GCSE girls physical education, a

more flexible and collaborative approach was used. In chapter 8 I discuss the pedagogies observed at both case study schools in greater detail.

Table 12: Pupil participation behaviours during netball and football lessons (6 lessons per group) Values are Mean ± SD

| | Greensands girls | | Greensands boys | | Forestside girls | | Forestside boys | |
|---|---|---|---|---|---|---|---|---|
| | % | Time | % | Time | % | Time | % | Time |
| WU | **7.9%** ±1.3 | **03:13** ±00:39 | **11.4%** ±6.6 | **03:46** ±02:00 | **15.0%** ±9.9 | **06:00** ±04:12 | **9.0%** ±1.7 | **03:27** ±00:37 |
| ASLT | **32.9%** ±12.4 | **13:22** ±04:53 | **22.7%** 24.8 | **07:31** ±08:13 | **42.6%** ±19.3 | **16:46** ±07:40 | **51.2%** ±13.7 | **19:37** ±04:51 |
| ESLT | **10.8%** ±5.4 | **04:23** ±02:09 | **10.8%** ±12.0 | **03:32** ±03:55 | **19.5%** ±11.0 | **07:29** ±03:35 | **16.2%** ±6.1 | **06:16** ±02:26 |
| NESLT | **22.1%** ±8.3 | **08:58** ±03:16 | **11.7%** ±13.0 | **03:59** ±04:19 | **23.1%** ±20.2 | **09:17** ±08:21 | **35.0%** ±13.6 | **13:21** ±04:57 |
| NESLT-L | **11.9%** ±4.9 | **04:53** ±02:08 | **9.5%** ±10.0 | **03:10** ±03:20 | **12.1%** ±5.7 | **04:52** ±02:25 | **21.4%** ±8.5 | **08:10** ±03:05 |
| NESLT-A | **1.8%** ±3.0 | **00:42** ±01:12 | **0.0%** ±0.0 | **00:00** ±00:00 | **0.1%** ±0.3 | **00:02** ±00:06 | **0.4%** ±1.0 | **00:09** ±00:22 |
| NESLT-W | **8.4%** ±4.0 | **03:22** ±01:31 | **2.4%** ±3.2 | **00:48** ±01:06 | **10.9%** ±16.6 | **04:23** ±06:50 | **13.2%** ±5.4 | **05:01** ±02:00 |
| AGPT | **45.2%** ±15.3 | **18:37** ±06:45 | **51.8%** ±17.9 | **17:10** ±06:07 | **32.0%** ±13.7 | **12:48** ±05:59 | **25.9%** ±15.3 | **10:11** ±06:33 |
| EGPT | **20.5%** ±13.7 | **08:28** ±05:46 | **26.7%** ±13.4 | **08:50** ±04:26 | **20.3%** ±11.3 | **08:02** ±04:33 | **13.6%** ±9.7 | **05:22** ±04:05 |
| NEGPT | **24.8%** ±15.0 | **10:08** ±06:15 | **25.1%** ±15.0 | **08:20** ±02:49 | **11.8%** ±5.0 | **04:46** ±02:18 | **12.3%** ±6.3 | **04:49** ±02:42 |
| NEGPT-L | **12.1%** ±7.7 | **04:57** ±03:09 | **15.0%** ±9.6 | **04:57** ±02:23 | **4.3%** ±4.0 | **01:44** ±01:39 | **5.2%** ±3.9 | **02:02** ±01:35 |
| NEGPT-A | **0.0%** ±0.0 | **00:00** ±00:00 | **0.4%** ±0.9 | **00:06** ±00:15 | **0.0%** ±0.0 | **00:00** ±00:00 | **0.0%** ±0.0 | **00:00** ±00:00 |
| NEGPT-W | **12.7%** ±8.0 | **05:11** ±03:21 | **9.6%** ±4.7 | **03:16** ±01:40 | **7.4%** ±4.9 | **03:01** ±02:11 | **7.0%** ±3.9 | **02:46** ±01:38 |
| TLT | **24.1%** ±12.6 | **09:50** ±05:18 | **24.6%** ±8.0 | **08:07** ±02:17 | **16.5%** ±8.3 | **06:36** ±04:03 | **26.6%** ±8.1 | **10:12** ±02:56 |
| TAT | **1.8%** ±3.0 | **00:42** ±01:12 | **0.4%** ±0.9 | **00:06** ±00:15 | **0.1%** ±0.3 | **00:02** ±00:06 | **0.4%** ±1.0 | **00:09** ±00:22 |
| TWT | **21.1%** ±9.2 | **08:33** ±03:43 | **12.0%** ±3.7 | **04:05** ±01:34 | **18.3%** ±17.3 | **07:24** ±07:09 | **20.2%** ±4.2 | **07:47** ±01:38 |
| TAAT | **39.2%** ±14.7 | **16:05** ±06:25 | **48.8%** ±8.1 | **16:08** ±02:44 | **54.7%** ±20.5 | **21:30** ±07:40 | **38.9%** ±9.3 | **15:05** ±04:13 |

The key for pupil behaviours is provided in Table 9.

Management behaviours

During games lessons for the boys at both schools and the girls at Greensands the time spent engaged in managerial behaviours, such as beginning the class and getting out

equipment management, equated to approximately 14% of the lesson. In contrast, Forestside girls spent a smaller proportion of lesson time in management behaviours (10.4%). Table 13 below shows the actual time and the percentage of lesson time that pupils spent participating in specific lesson management behaviours. For each class group organisational activities comprised the highest proportion of their management time, with Greensands girls engaging in the greatest activity of this nature. Behaviour management time was low for the girls classes (0.1% and 0.2% at Greensands and Forestside respectively), than for the boys, and in particular the boys at Greensands (1.4% at Foreside and 2.9% at Greensands).

Table 13: Pupil management behaviours during netball and football lessons (6 lessons per group) Values are Mean ± SD

| | Greensands girls | | Greensands boys | | Forestside girls | | Forestside boys | |
|---|---|---|---|---|---|---|---|---|
| | % | Time | % | Time | % | Time | % | Time |
| BEC | **3.2%** ±1.8 | **01:27** ±00:41 | **3.0%** ±3.3 | **00:59** ±01:02 | **1.8%** ±2.8 | **00:42** ±01:02 | **4.3%** ±1.6 | **01:40** ±00:38 |
| EQM | **1.1%** ±1.0 | **00:37** ±00:32 | **0.6%** ±0.7 | **00:11** ±00:14 | **3.5%** ±1.6 | **01:26** ±00:43 | **1.1%** ±1.3 | **00:25** ±00:29 |
| ORG | **8.6%** ±2.8 | **03:28** ±01:03 | **5.9%** ±3.4 | **01:58** ±01:15 | **4.1%** ±1.5 | **01:39** ±00:39 | **5.2%** ±1.3 | **02:49** ±02:24 |
| BEHM | **0.1%** ±0.3 | **00:03** ±00:07 | **2.9%** ±3.3 | **01:01** ±01:15 | **0.2%** ±0.3 | **00:05** ±00:07 | **1.4%** ±2.2 | **00:33** ±00:53 |
| OT | **0.9%** ±0.7 | **00:22** ±00:16 | **1.6%** ±0.7 | **00:31** ±00:15 | **0.7%** ±0.5 | **00:17** ±00:13 | **1.8%** ±1.9 | **01:08** ±01:06 |
| TMT | **13.8%** ±3.2 | **05:56** ±01:22 | **14.1%** ±4.1 | **04:41** ±01:39 | **10.4%** ±2.8 | **04:08** ±01:13 | **14.0%** ±2.9 | **06:35** ±02:35 |
| TNAAT | **60.8%** ±14.6 | **25:02** ±06:27 | **51.0%** ±8.4 | **16:59** ±03:34 | **45.2%** ±20.5 | **18:11** ±08:43 | **61.2%** ±9.4 | **24:44** ±03:42 |
| LESSON TIME | | **42:16** ±03:56 | | **33:00** ±03:01 | | **40:45** ±02:47 | | **40:04** ±02:59 |

A key for behaviours is provided in Table 9.

Stage 3: 'Regulation' of effort levels during physical education

During this stage the focus of the research shifted towards exploring further the compatibility of discourses of physical activity and sport within games lessons. In particular I was concerned to pursue the ways in which pupils might be able to take further responsibility for their own learning about physical activity within games contexts, and more specifically how pupils might 'regulate' different physical activity

levels within the context of their netball or football lessons. This stage was planned to promote pupils' understanding of how to be active, and of how much physical activity, and at what levels, is required if activity in physical education is to effectively contribute to recommendations established with benefits to health in mind. Previous stages (preliminary procedures and 'rating' lessons) represented essential prior learning experiences for pupils to enable them to utilise this knowledge and experience to assist them in the 'regulation' of different activity levels within physical education.

The same teachers and pupils who participated in stages 1 and 2 also completed stage 3 of this phase of the research. In collaboration with each of the teachers, a series of four physical education lessons were planned that included opportunities for pupils to attempt to 'regulate' their levels of physical activity in different aspects of either netball or football lessons (see below). The pupils were asked to monitor their physical activity levels in order to try and achieve PCERT ratings of 2 (very easy), 4 (just feeling a strain), and 6 (hard) during specific elements, (For example, '2' during the warm up aspect) of each of the four physical education lessons. Each of the 'regulation' lessons took place in the physical education groups scheduled physical education time and to retain pupil familiarity with procedures and PCERT levels the series of lessons continued immediately after the completion of the 'rating' phase of data collection.

Planning the lessons

The objectives of each of the physical education lessons were determined by myself and the respective physical education teacher and were based upon the key issues relating to how much physical activity young people should participate in during physical education lessons and at what times/phases of the lesson this can and should can occur (see chapters 4 and 5). The 'range' of effort levels to be produced was 'matched' to desirable and appropriate physical activity targets for young people during for physical education lessons. Opportunities for pupils to 'self-regulate' activity levels occurred in elements of lessons that were considered practical and achievable within the contexts of the games activities. Specific activities within the physical education lessons were designed that could facilitate the pupil self-regulation

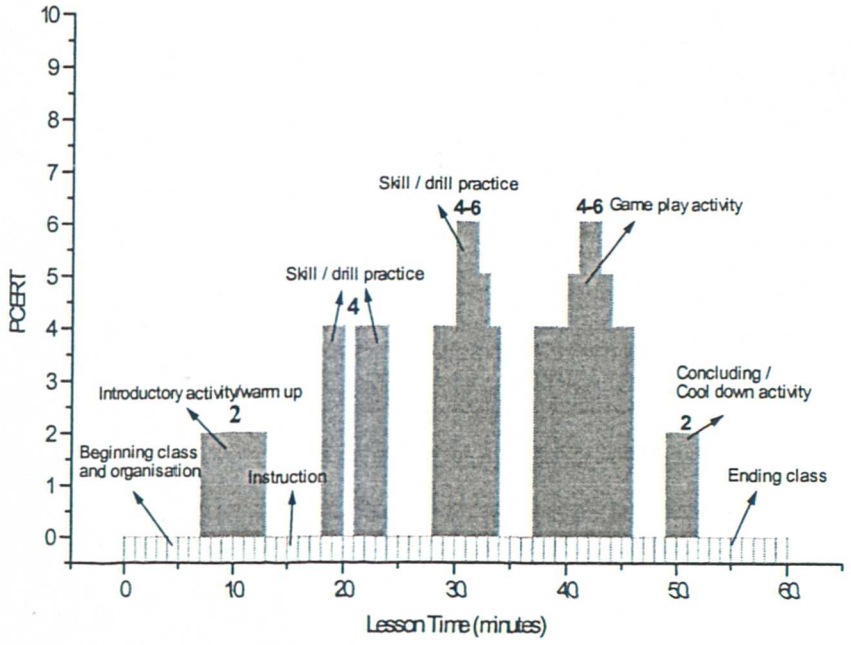
of the desired physical activity PCERT ratings. The planning and implementation of these activities was dependent upon the particular teaching approaches used throughout the lesson. The physical education teachers devised two lessons that adopted a 'traditional' approach and two lessons that featured a 'Teaching Games for Understanding' (TGfU, Bunker and Thorpe, 1983) approach for their physical education class. Appendix M outlines the content of these lessons. During certain lesson activities the teacher asked the pupils to attempt to regulate their physical activity to a specific level, either PCERT 2, 4, or 6. Instruction regarding the specific activity in which the 'regulation' was required were also given by the teacher at this time. For example, in year 7, during the warm up activity the physical education teacher outlined the nature of the task to be completed for the warm up and then provided the level for the children to regulate their physical activity during the warm up (for example, PCERT2). The pupils subsequently completed the warm up activity whilst attempting to self-regulate their activity level to match this prescribed level. A different effort level was prescribed for a subsequent activity. For example, in year 10 the GCSE girls were asked to design a specific game playing activity for netball that progressed to an equivalent of PCERT6 for all pupils. A skill development activity was requested that demanded the pupils regulate activity at PCERT4.

As we have previously seen (see chapter 5) matters of pedagogy and teaching approaches are key factors in determining the type of activities that are incorporated in games lessons and the ways physical activity features in these contexts. The lessons in this stage of my research were designed with reference to the two contrasting approaches to the teaching of games that had emerged in previous work (as discussed in chapter 5). Below I provide typical physical activity profiles that portray the desired target physical activity levels within each of the two approaches. These profiles seek to show how much physical activity is realistic and desirable during a physical education lesson if it is to make a contribution to recommendations for young peoples active lifestyles and when such activity might take place. The profiles indicate the points during the lessons that physical activity should or could be included, and the appropriate intensity, in terms of the pupil PCERT rating. The profiles are not intended as rigid guidelines for physical activity inclusion during physical education, but as flexible frameworks, illustrating the different ways in which games lessons can *realistically* contribute towards physical activity recommendations for young people.

Physical activity in games: lesson profiles

The physical activity / PCERT profile for the **'traditional'** lesson example (see Figure 11 below) included a period of time allocated to changing, organisation, including travel time, and instruction at the beginning and end of the lesson. The introductory activity warm up included shows that during this time **all** pupils should experience physical activity that is not strenuous or **the most** physically active part of the lesson.

Figure 11: PCERT / Physical activity / profile during a 'traditional' games lesson

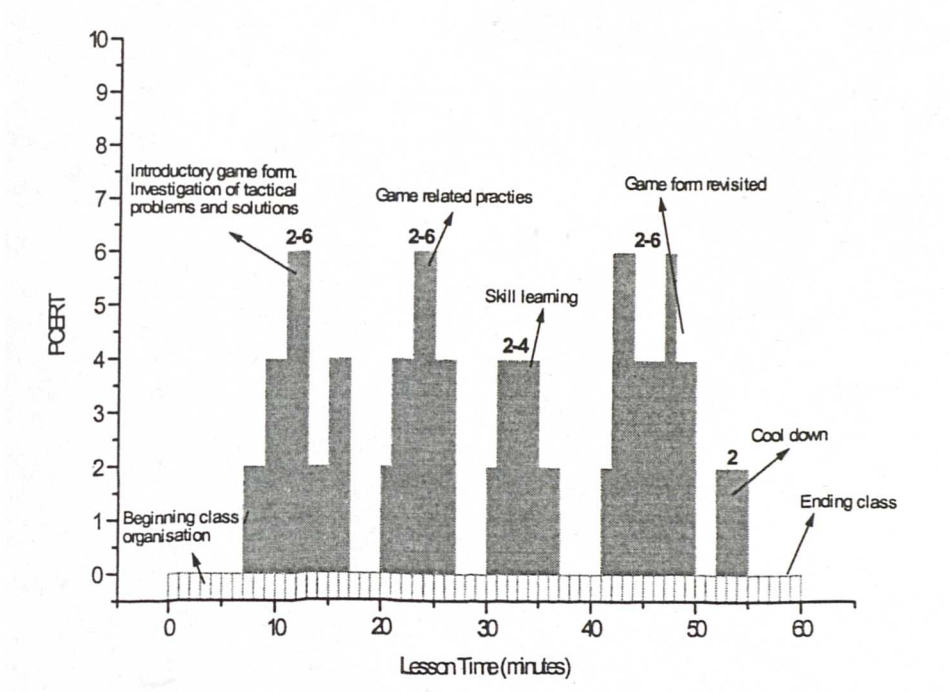



In agreement with the previously presented model of a 'traditional' lesson format (See chapter 5, and Turner and Martinek, 1995), the lesson material included skill development practices planned to enable pupils to regulate activity at PCERT 4 and/or 6 and continued with the 'game play' phase where material presented sought to provide pupils with the opportunity to participate at PCERT4 and/or 6. It is acknowledged that the inclusion of physical activity during physical education lessons cannot be simplified and is a complex issue influenced by numerous other factors within the context of the lesson, for example, pupil motivation and ability level. Other issues of teaching and learning in relation to the nature of the task, group size and composition, allocated playing positions and responsibilities, game rules and

constraints, the size of the playing area, the equipment and resources, all warrant consideration if desired and appropriate physical activity levels are to be achieved by all pupils. Certainly, these matters emerged as significant during data collection are discussed further in Chapter 9. Throughout the profile of PCERT levels for the 'traditional' model of games teaching available lesson time for physical activity participation was interspersed with time allocated for organisation of groups, periods of instruction, use of demonstrations and behaviour management.

The physical activity/PCERT profile presented for a typical physical education lesson adopting the use of the **'TGFU'** approach begins with the game form itself (See Figure 12).

Figure 12: PCERT / Physical activity profile during a 'TGFU' games lesson




Throughout the game form pupil physical activity levels were targeted at between PCERT2 and 6. The game playing periods were interspersed with teacher questioning episodes which attempted to elicit responses from the pupils about the problems presented by the game form and how these might be addressed. This period of game play was followed by specific game-related practice that sought to find solutions to the problems previously identified in the game form. During the skill-learning episode of the illustrated lesson it is suggested that the physical activity level should be

PCERT2 to 4. The game form is subsequently modified or reintroduced to (re) assess game performance.

Broader issues of teaching and learning considered in the development of these lessons included the game playing context, the format of the game, the size of the groups, for example, small-sided modified game situations, the individual role/s within the group, the relationships within the group, and performance outcomes of the game. It should be noted here that one of the physical education teachers at Forestside (Mrs Howe) withdrew from the study after the completion of the six 'rating' lessons and the first 'regulation' lesson (see Appendix N).

Findings from Stage 3: Self-regulation lessons

Within each lesson the pupils' physical activity levels throughout the duration of the specific lesson aspects when they were required to self-regulate their physical activity levels to match each of the three PCERT ratings was established using a detailed analysis of each pupils individual lesson heart rate time curve. Full details of this analysis procedure can be found in Appendix O. Table 14 below shows the average values for pupils' self-regulated physical activity levels (heart rates) at PCERT levels 2, 4, and 6 during either 'TGfU' or 'traditional' games lessons contexts[4].

Table 14: Self-regulated activity levels (heart rate; $bmin^{-1}$) at each of the PCERT levels. (Values are Mean ± SD)

| **Greensands Upper School** | | | | |
|---|---|---|---|---|
| | **Traditional** | | **TGfU** | |
| **PCERT** | **Girls** | **Boys** | **Girls** | **Boys** |
| **2** | 121.1±15.5 | 141.1±17.3 | 121.2±19.3 | 146.6±14.7 |
| **4** | 148.6±15.4 | 156.0±15.8 | 142.5±20.8 | 155.6±14.3 |
| **6** | 156.5±12.5 | 161.0±19.9 | 160.5±16.2 | 157.7±17.7 |
| **Forestside Middle School** | | | | |
| | **Traditional** | | **TGfU** | |
| **PCERT** | **Girls** | **Boys** | **Girls** | **Boys** |
| **2** | 159.4±16.0 | 143.1±10.8 | 135.5±16.2 | 151.6±18.3 |
| **4** | 163.9±17.6 | 151.3±13.7 | 156.5±15.7 | 163.3±10.8 |
| **6** | 169.6±14.2 | 159.3±15.2 | 168.8±14.8 | 162.8±14.5 |

[4] At this stage in my analysis I was concerned with describing patterns observed in the regulated activity levels rather than engaging with statistical procedures seeking to establish differences

Self-regulation of physical activity in 'traditional' lessons

During lessons taught following a 'traditional' format there were observable differences in the self-regulated activity levels at the three PCERT level for each of the groups in both case study schools. This suggests the pupils were able to self-regulate their physical activity levels according to the three PCERT ratings. Specifically, with an increase in PCERT rating there was a parallel increase in physical activity level (observable through rises in heart rate at each of the three PCERT levels). There was however notable variation between groups. For example, the range of heart rates for Forestside girls was only 10bmin$^{-1}$ across PCERT2 to 6, yet for the girls at Greensands the range between PCERT2 and PCERT6 was 35bmin$^{-1}$. This suggests that during games lessons delivered following a 'traditional' format the girls at Greensands were more successful at differentiating between the three activity levels than other groups. During the 'traditional' lessons, Forestside girls also produced notably high average heart rates when asked to regulate their activity to match PCERT2. Specifically, despite being asked try and regulate activity that was 'very easy', relatively high heart rates (159 bmin$^{-1}$) were observed. Furthermore, in the case of the other three groups, it was noticeable that heart rates between PCERT2 and PCERT4 had a greater range than heart rates at PCERT4 and 6, suggesting that in their efforts to self-regulate physical activity these pupils found it easier to (or were more willing to, see chapter 9) distinguish between physical activity levels of lower intensities.

Self-regulation of physical activity in TGfU lessons

In agreement with findings during the traditional approach, during lessons delivered following a TGfU approach all groups' heart rates increased with corresponding increases in PCERT level. Within TGfU lessons the heart rates observed in the girls at Greensands showed a range of approximately 20 bmin$^{-1}$ between each of the three PCERT levels suggesting that these girls were particularly able to monitor their levels of physical activity, differentiate between them, and match them to the three different levels. In contrast, despite heart rates being lower at PCERT2 for the boys at both Forestside and Greensands, activity levels at PCERT4 and PCERT6 were only differentiated by 1 and 2 bmin$^{-1}$ respectively. These findings seem to point towards the

notion that at higher physical activity levels the boys were unable (or unwilling, see Chapter 9) to self-regulate their physical activity. In contrast to their experiences during games lessons delivered adopting using 'traditional' approach, the girls at Forestside were seemingly more able to self-regulate their physical activity levels during games lessons taught using a TGfU approach. In particular the data shows how these girls heart rates were notably lower at PCERT2 and the range between each of the PCERT levels was much greater than in 'traditional' type lessons ($10bmin^{-1}$ as compared with $33bmin^{-1}$).

This discussion has reported the objective indicators of physical activity (heart rate) that were used to explore the pupils' ability to self-regulate their physical activity levels. Interpreted in isolation they suggest that pupils can monitor their physical activity levels and adjust these to enable them to regulate a specified level of activity with varying degrees of success. It was clear that the girls at Greensands were the most consistent and successful in self-regulating their physical activity levels in both lesson contexts. All pupils were generally able to regulate there activity levels at lower intensities in both 'traditional' and TGfU lessons, however the boys in particular experienced difficulty in regulating their activity levels to match PCERT levels 4 and 6 during lessons taught using a TGFU approach. The data thus revealed some interesting patterns, yet arguably failed to take into account the pedagogical relationships of the classrooms and the complex nature of the teaching and learning environment. The observation and physical activity data presented below serves to contextualise findings further. When viewed and interpreted in combination, the multi-method approach to data collection promotes a much deeper understanding and subsequent interpretation of the data collected in this phase of the research

Self-regulation lessons: Insights from physical activity data

To maintain consistency with previous phases of data collection (see chapters 4 and 5) in this stage of my research I also sought to establish the physical activity levels (in terms of heart rate based intensities: light, moderate, moderate to vigorous and vigorous) of the pupils from both schools in physical education lessons, and specifically within the different approaches to teaching games. Table 15 below details the amount of time and the proportion of lesson time that the pupils spent participating

in physical activity of these four different intensities in lessons following a 'traditional' or a 'TGFU' model for the teaching of games.

At Forestside both the girls and the boys experienced less than 50% of lesson time participating in physical activity that was of light intensity in both games lessons contexts. This suggests that each approach has the potential to contribute to target physical activity recommendations for young people during physical education. The pupils at Forestside experienced similar amounts of time in moderate, and moderate to vigorous activity regardless of the approach to teaching games adopted, although some differences in terms of the relative amounts of time spent in vigorous activity were apparent. In particular, it was observed that the girls at Forestside experienced a much greater allocation of lesson time in activity of a vigorous nature during 'traditional' lessons as compared with during TGfU lessons. This trend was reversed in the case of the Forestside boys where a greater amount of vigorous activity was observed during TGfU lessons than in 'traditional' lessons approach. Potential factors giving rise to these findings are explored in greater detail in chapter 9.

Table 15: Physical activity levels in 'Traditional and TGfU lessons at Forestside and Greensands. (Values are Mean ± SD)

| Group | Appr | Tot.T | AvHR | MHR | Vigorous | | Mod to Vig | | Moderate | | Light | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | Mins: | $bmin^{-1}$ | $bmin^{-}$ | >75%HRR | | 60-75%HRR | | 50-59.9%HRR | | <50%HRR | |
| | | secs | | | % time | Act.T(m) | % time | Act.T(m) | % time | Act.T(m) | % time | Act.T(m) |
| Forestside Girls | *Trad* | 42:32 | 153.3 | 193.5 | 24.1% | 10:32 | 27.3% | 11:43 | 18.2% | 07:44 | 30.4% | 12:32 |
| | | ±04:14 | ±14.1 | ±21.4 | ±18.0 | ±08:17 | ±8.2 | ±04:06 | ±5.6 | ±02:33 | ±15.5 | ±05:45 |
| | *TGfU* | 35:33 | 146.2 | 190.5 | 15.8% | 05:30 | 28.0% | 09:47 | 18.2% | 06:23 | 36.8% | 13:21 |
| | | ±04:14 | ±13.5 | ±13.6 | ±13.6 | ±04:41 | ±7.9 | ±02:21 | ±6.1 | ±01:55 | ±12.3 | ±05:42 |
| Forestside Boys | *Trad* | 45:16 | 142.8 | 187.5 | 10.2% | 04:39 | 26.8% | 12:10 | 22.1% | 09:57 | 41.0% | 18:32 |
| | | ±01:11 | ±10.0 | ±8.9 | ±7.8 | ±03:33 | ±7.0 | ±04:27 | ±8.3 | ±03:36 | ±14.4 | ±06:16 |
| | *TGfU* | 44:04 | 145.3 | 191.7 | 18.2% | 07:55 | 28.5% | 12:33 | 16.3% | 07:13 | 37.0% | 16:25 |
| | | ±01:53 | ±11.5 | ±9.9 | ±11.2 | ±04:43 | ±7.0 | ±03:04 | ±4.4 | ±02:02 | ±12.3 | ±05:48 |
| Greensands Girls | *Trad* | 47:13 | 132.7 | 182.1 | 13.4% | 06:20 | 20.6% | 09:42 | 14.5% | 06:49 | 51.7% | 24:29 |
| | | ±03:07 | ±14.7 | ±15.3 | ±14.0 | ±06:55 | ±9.5 | ±04:30 | ±4.5 | ±03:02 | ±21.5 | ±10:30 |
| | *TGfU* | 32:14 | 126.4 | 178.5 | 10.8% | 03:24 | 15.4% | 05:28 | 11.8% | 03:51 | 60.6% | 19:31 |
| | | ±05:32 | ±18.0 | ±15.3 | ±11.4 | ±03:29 | ±9.2 | ±03:03 | ±6.3 | ±01:57 | ±20.8 | ±07:03 |
| Greensands Boys | *Trad* | 39:14 | 142.3 | 191.3 | 18.7% | 07:21 | 20.8% | 08:11 | 21.2% | 08:24 | 39.3% | 15:18 |
| | | ±03:09 | ±13.9 | ±13.1 | ±16.3 | ±06:30 | ±5.1 | ±02:04 | ±7.2 | ±03:19 | ±15.1 | ±05:45 |
| | *TGfU* | 33:22 | 145.8 | 188.7 | 17.8% | 05:55 | 25.0% | 08:46 | 24.0% | 07:56 | 36.1% | 11:33 |
| | | ±05:53 | ±11.1 | ±11.1 | ±16.0 | ±05:10 | ±9.9 | ±03:54 | ±6.4 | ±02:16 | ±15.2 | ±03:52 |

At Greensands the boys experienced similar amounts of time participating in light physical activity in both 'traditional' (39.3%) and TGfU (36.1%) lessons, with activity levels in both lesson types contributing towards the 'active for 50% or more of lesson time' physical activity guideline (Harris, 2000). For the boys, distribution of physical activity time throughout the other three HRR zones were also similar during both lesson approaches. In contrast, the girls at Greensands were the only group of pupils who experienced more than 50% of their games lessons participating in physical activity of light intensity. Although this increase was only marginal in 'traditional' lesson contexts (51.7%), time in light activity represented 60% of lesson time when lessons were taught following a TGfU approach. For these girls, more time was spent participating in vigorous activity during 'traditional' lessons than during TGfU lessons.

Observation (PETAI) of pupil behaviour in 'traditional' and TGfU lessons

As anticipated, due to the contrasting nature and emphasis of either approach there were differences in the amounts of time allocated to skill learning and game playing in the different lessons. Specifically, in both case study schools more lesson time was allocated to skill-learning as compared with game playing in 'traditional' lesson formats, and more time was allocated to game playing time in TGfU contexts as compared with the amount of time allocated to game playing in 'traditional' lessons.

Greensands Upper School

At Greensands, apart from the clear distinction between allocated skill learning time (ASLT) and allocated game playing time (AGPT), the girls experienced similar amounts of total lesson time in each of the other pupil behaviours, for example, total listening time (TLT) and total waiting time (TWT). Furthermore, the total available activity time (TAAT) during both the 'traditional' and TGfU approaches was also similar. More specifically, each of the lesson approaches provided the girls with over 40% of lesson time with opportunities to be engaged in 'activity'. Tables 16 and 17 below show pupil participation and managerial behaviours at Greensands during 'regulation' lessons taught following either a 'traditional' or a 'TGfU' approach to the teaching of games. There was a clear difference in the time allocated to skill learning

and game playing within the respective approaches to games teaching for the boys at Greensands. However, the boys experienced a greater proportion of lesson time listening (TLT) and in behaviour management (BEHM) during 'traditional' lesson formats (27.4% and 5.8% respectively) as compared with these behaviours in lessons that followed a TGfU approach (15.5% and 2.7% respectively).

Table 16: Greensands Upper School: pupil participation behaviours during 'regulation' lessons. (Values are Mean ± SD)

| | Girls | | | | Boys | | | |
|---|---|---|---|---|---|---|---|---|
| | Trad | | TGfU | | Trad | | TGfU | |
| | % | Time | % | Time | % | Time | % | Time |
| WU | 6.8% ±2.6 | 03:08 ±01:11 | 14.5% ±0.7 | 05:00 ±0:33 | 10.2% ±0.9 | 03:49 ±0:36 | 11.1% ±0.5 | 03:43 ±0:20 |
| ASLT | 58.9% ±0.1 | 27:20 ±0:02 | 4.5% ±6.4 | 01:23 ±01:57 | 37.2% ±10.9 | 13:59 ±05:00 | 1.3% ±1.8 | 00:24 ±0:34 |
| ESLT | 27.4% ±0.2 | 12:37 ±0:01 | 0.0% ±0.0 | 00:00 ±0:00 | 17.5% ±1.3 | 06:32 ±0:54 | 0.0% ±0.0 | 00:00 ±0:00 |
| NESLT | 31.7% ±0.1 | 14:41 ±0:04 | 4.5% ±6.4 | 01:23 ±01:57 | 19.7% ±9.6 | 07:27 ±04:05 | 1.3% ±1.8 | 00:24 ±0:34 |
| NESLT-L | 28.3% ±0.2 | 12:59 ±0:04 | 4.5% ±6.4 | 01:23 ±01:57 | 15.1% ±5.4 | 05:41 ±02:23 | 1.3% ±1.8 | 00:24 ±0:34 |
| NESLT-A | 0.0% ±0.0 | 00:00 ±0:00 | 0.0% ±0.0 | 00:00 ±0:00 | 0.0% ±0.00 | 00:00 ±0:00 | 0.0% ±0.0 | 00:00 ±0:00 |
| NESLT-W | 3.4% ±0.1 | 01:42 ±0:08 | 0.0% ±0.0 | 00:00 ±0:00 | 4.6% ±4.2 | 01:46 ±01:42 | 0.0% ±0.0 | 00:00 ±0:00 |
| AGPT | 19.4% ±2.9 | 09:01 ±01:20 | 68.2% ±0.5 | 23:32 ±03:48 | 36.6% ±11.5 | 13:28 ±03:22 | 74.3% ±2.5 | 24:54 ±01:54 |
| EGPT | 9.1% ±3.2 | 04:12 ±01:28 | 30.0% ±6.7 | 10:11 ±0:42 | 20.0% ±2.9 | 07:24 ±0:35 | 40.9% ±2.9 | 13:42 ±01:33 |
| NEGPT | 8.5% ±2.3 | 04:49 ±0:04 | 38.2% ±7.2 | 13:21 ±04:31 | 16.6% ±8.6 | 06:03 ±02:47 | 33.4% ±0.4 | 11:11 ±0:21 |
| NEGPT-L | 2.8% ±0.4 | 01:14 ±0:04 | 26.0% ±2.2 | 09:01 ±02:08 | 8.3% ±7.0 | 02:59 ±02:24 | 17.9% ±1.2 | 06:00 ±0:40 |
| NEGPT-A | 0.0% ±0.0 | 00:00 ±0:00 | 0.0% ±0.0 | 00:00 ±0:00 | 0.0% ±0.00 | 00:00 ±0:00 | 0.0% ±0.0 | 00:00 ±0:00 |
| NEGPT-W | 7.5% ±0.1 | 03:34 ±0:04 | 12.2% ±5.0 | 04:20 ±02:23 | 8.3% ±1.6 | 03:04 ±0:24 | 15.5% ±1.6 | 05:11 ±0:18 |
| TLT | 31.1% ±0.1 | 14:13 ±0:08 | 30.5% ±4.2 | 10:23 ±0:11 | 27.4% ±1.6 | 08:39 ±0:01 | 19.2% ±0.6 | 06:24 ±0:06 |
| TAT | 0.0% ±0.0 | 00:00 ±0:04 | 0.0% ±0.0 | 00:00 ±0:00 | 0.0% ±0.0 | 00:00 ±0:00 | 0.0% ±0.0 | 00:00 ±0:00 |
| TWT | 11.0% ±0.0 | 05:16 ±0:04 | 12.2% ±5.0 | 04:20 ±02:23 | 12.9% ±2.6 | 04:50 ±01:18 | 15.5% ±1.6 | 05:11 ±0:18 |
| TAAT | 43.0% ±5.5 | 19:58 ±02:39 | 44.6% ±7.4 | 15:11 ±0:09 | 47.7% ±0.7 | 17:44 ±0:56 | 52.0% ±3.4 | 17:25 ±01:53 |

The key for the behaviours in the Table can be found in Table 9.

This pattern of time listening and in behaviour management was reflected in the total available activity time (TAT) for each of the lesson contexts, where more time was available in TGfU lessons (52.0%) as compared with during 'traditional' lessons (47.7%). In contrast, the girls were not engaged in any behavioural management time in either approach. Pedagogical implications of these findings in relation to the pupils' enthusiasm and motivation for physical education and the extent to which these issues impacted upon the ways in which they regulated their levels of physical activity are discussed in greater detail in chapters 8 and 9.

Table 17: Greensands Upper School: pupil managerial behaviours during 'regulation' lessons. (Values are Mean ± SD)

| | Girls | | | | Boys | | | |
|---|---|---|---|---|---|---|---|---|
| | Trad | | TGfU | | Trad | | TGfU | |
| | % | Time | % | Time | % | Time | % | Time |
| BEC | 8.6% ±4.1 | 03:59 ±01:55 | 6.0% ±1.5 | 02:07 ±0:50 | 2.3% ±0.1 | 00:52 ±0:06 | 2.7% ±1.1 | 00:53 ±0:25 |
| EQM | 0.6% ±0.8 | 00:16 ±0:22 | 0.0% ±0.0 | 00:00 ±0:00 | 0.8% ±0.0 | 00:18 ±0:00 | 1.0% ±0.9 | 00:19 ±0:16 |
| ORG | 5.2% ±1.4 | 02:23 ±0:39 | 6.7% ±5.1 | 02:27 ±02:06 | 6.8% ±4.3 | 02:29 ±01:26 | 7.0% ±1.4 | 02:22 ±0:35 |
| BEHM | 0.0% ±0.0 | 00:00 ±0:00 | 0.0% ±0.0 | 00:00 ±0:00 | 5.8% ±3.6 | 02:12 ±01:31 | 2.7% ±2.9 | 00:51 ±0:56 |
| OT | 0.6% ±0.8 | 00:16 ±0:23 | 0.0% ±0.0 | 00:04 ±0:05 | 0.2% ±0.3 | 00:05 ±0:07 | 0.0% ±0.0 | 00:00 ±0:00 |
| TMT | 14.9% ±5.5 | 06:54 ±02:33 | 12.7% ±6.6 | 04:38 ±03:01 | 16.0% ±0.3 | 05:56 ±0:18 | 13.3% ±1.3 | 04:25 ±0:13 |
| TNAAT | 57.0% ±5.7 | 26:23 ±02:37 | 55.4% ±7.4 | 19:22 ±05:35 | 52.3% ±0.7 | 19:26 ±01:35 | 48.0% ±3.4 | 16:00 ±0:25 |
| TLESST | | 46:21 ±0:02 | | 34:33 ±05:26 | | 37:09 ±02:31 | | 33:25 ±01:28 |

Forestside Middle School

At Forestside, there were once again notable differences in the time allocated to game playing (AGPT) and skill learning (ASLT) in congruence with the specific approach followed. This was particularly visible in the case of the boys' group where the teacher allocated no lesson time to skill learning during a TGfU approach, and conversely, allocated no time to game playing during a 'traditional' approach. There is a need to acknowledge here that despite the lessons being planned to reflect the distinctive principles of either approach, a degree of misinterpretation by the teacher may have taken place regarding the rationale behind, and content of the approaches.

More specifically, 'traditional' lessons can and should include aspects of game playing, and likewise, TGfU advocates the inclusion of skill learning (see previous discussion that describes each approach in chapter 5). Table 18 below describes the participation behaviours of pupil at Forestside during 'regulation 'lessons.

Table 18: Forestside Middle School: pupil participation behaviours during 'regulation' lessons. (Values are Mean ± SD)

| | Girls | | | | Boys | | | |
|---|---|---|---|---|---|---|---|---|
| | Trad | | TGfU* | | Trad | | TGfU | |
| | % | Time | % | Time | % | Time | % | Time |
| WU | 14.2% ±2.5 | 05:51 ±01:46 | 5.9% | 02:07 | 8.5% ±0.4 | 03:31 ±0:04 | 7.6% ±0.9 | 03:01 ±0:40 |
| ASLT | 52.5% ±12.6 | 21:00 ±02:24 | 7.3% | 02:37 | 69.7% ±0.3 | 28:58 ±0:37 | 0.0% ±0.00 | 00:00 ±0:00 |
| ESLT | 32.2% ±5.4 | 12:58 ±0:31 | 4.8% | 01:43 | 32.5% ±8.2 | 13:28 ±03:03 | 0.0% ±0.00 | 00:00 ±0:00 |
| NESLT | 20.2% ±7.2 | 08:01 ±01:52 | 2.5% | 00:53 | 37.2% ±7.9 | 15:29 ±03:41 | 0.0% ±0.00 | 00:00 ±0:00 |
| NESLT-L | 16.4% ±7.1 | 06:29 ±02:02 | 2.5% | 00:53 | 15.0% ±2.9 | 06:13 ±01:02 | 0.0% ±0.00 | 00:00 ±0:00 |
| NESLT-A | 0.0% ±0.0 | 00:00 ±0:00 | 0.0% | 00:00 | 0.0% ±0.0 | 00:00 ±0:00 | 0.0% ±0.00 | 00:00 ±0:00 |
| NESLT-W | 3.8% ±0.1 | 01:33 ±0:10 | 0.0% | 00:00 | 22.2% ±10.7 | 09:15 ±04:42 | 0.0% ±0.00 | 00:00 ±0:00 |
| AGPT | 19.2% ±3.2 | 07:52 ±02:19 | 7.6% | 27:23 | 0.0% ±0.0 | 00:00 ±0:00 | 72.6% ±2.2 | 28:41 ±03:53 |
| EGPT | 12.9% ±1.4 | 05:16 ±01:14 | 41.9% | 14:56 | 0.0% ±0.0 | 00:00 ±0:00 | 43.6% ±2.3 | 17:09 ±0:54 |
| NEGPT | 6.3% ±1.9 | 02:36 ±01:05 | 34.6% | 12:23 | 0.0% ±0.0 | 00:00 ±0:00 | 29.0% ±4.6 | 11:32 ±03:00 |
| NEGPT-L | 6.2% ±1.7 | 02:33 ±01:01 | 31.0% | 11:05 | 0.0% ±0.0 | 00:00 ±0:00 | 17.6% ±1.5 | 06:57 ±01:20 |
| NEGPT-A | 0.0% ±0.0 | 00:00 ±0:00 | 0.0% | 00:00 | 0.0% ±0.0 | 00:00 ±0:00 | 0.0% ±0.00 | 00:00 ±0:00 |
| NEGPT-W | 0.1% ±0.1 | 00:02 ±0:04 | 3.6% | 01:17 | 0.0% ±0.0 | 00:00 ±0:00 | 11.4% ±3.0 | 04:34 ±01:40 |
| TLT | 22.6% ±5.4 | 09:01 ±01:02 | 33.5% | 11:58 | 15.0% ±15.0 | 06:13 ±01:02 | 17.6% ±1.5 | 06:57 ±01:20 |
| TAT | 0.0% ±0.0 | 00:00 ±0:00 | 0.0% | 00:00 | 0.0% ±0.0 | 00:00 ±0:00 | 0.0% ±0.00 | 00:00 ±0:00 |
| TWT | 3.9% ±0.1 | 01:35 ±0:13 | 3.6% | 01:17 | 22.2% ±10.7 | 09:15 ±04:42 | 11.4% ±3.0 | 04:34 ±01:40 |
| TAAT | 59.4% ±1.6 | 24:05 ±02:28 | 52.7% | 18:46 | 41.0% ±8.6 | 17:00 ±03:07 | 51.2% ±1.4 | 20:10 ±01:34 |

* Only one TGfU lesson

The total available activity time (TAAT) was greater in 'traditional' contexts (59.4%), than in TGfU contexts (52.7%) for the girls, but the reverse was apparent for the boys,

where TGfU lessons provided more available activity time that 'traditional' lessons (51.2% as compared with 41%). Linked to this finding is the fact that the boys spent considerably more time waiting (TWT), and more time in behaviour management (BEHM) during 'traditional' lessons than during TGfU lessons (22.2% and 11.4 % TWT and 5.8% and 3.2% BEHM respectively). These findings suggest that where boys were actively engaged in participation that related to playing the game, they were less likely to be disengaged. As I pursue in greater detail in chapters 8 and 9, these pedagogical and behavioural matters were important factors contributing towards pupils' self-regulation of physical activity levels, and the compatibility of discourses of physical activity and sport in games contexts. At Forestside, pupil time spent engaged in managerial behaviours was greater in 'traditional' lesson formats than during TGfU formats for both boys and girls. However, the girls spent considerably less time in managerial behaviours than boys during both lesson approaches. This was especially visible for behaviour associated with behaviour management where, like the girls at Greensands, the girls at Forestside experienced minimal lesson time in behaviour management. Table 19 below shows the time pupils at Forestside spent in managerial behaviours during 'regulation' lessons.

Table 19: Forestside Middle School: pupil managerial behaviours during 'regulation' lessons. (Values are Mean ± SD)

| | Girls | | | | Boys | | | |
|---|---|---|---|---|---|---|---|---|
| | Trad | | TGfU* | | Trad | | TGfU | |
| | % | Time | % | Time | % | Time | % | Time |
| BEC | 5.3% ±0.6 | 02:08 ±0:32 | 2.9% | 01:02 | 6.5% ±3.3 | 02:44 ±01:26 | 5.2% ±0.3 | 02:03 ±0:19 |
| EQM | 2.7% ±2.0 | 01:09 ±0:58 | 2.3% | 00:48 | 1.5% ±2.1 | 01:31 ±02:09 | 2.1% ±2.4 | 00:45 ±0:51 |
| ORG | 6.1% ±4.2 | 02:36 ±02:02 | 4.7% | 01:41 | 7.0% ±1.1 | 02:54 ±0:33 | 5.6% ±0.3 | 02:13 ±0:22 |
| BEHM | 0.0% ±0.0 | 00:00 ±0:00 | 0.3% | 00:06 | 5.8% ±1.3 | 02:22 ±0:27 | 3.2% ±3.6 | 01:20 ±01:33 |
| OT | 0.0% ±0.0 | 00:00 ±0:00 | 0.0% | 00:07 | 1.1% ±0.3 | 00:26 ±0:06 | 3.7% ±4.9 | 01:21 ±01:47 |
| TMT | 14.1% ±6.9 | 05:54 ±03:32 | 10.2% | 03:44 | 21.9% ±0.7 | 09:56 ±0:43 | 19.8% ±3.1 | 07:42 ±0:24 |
| TNAAT | 40.6% ±1.6 | 16:30 ±02:44 | 47.3% | 16:59 | 59.0% ±8.6 | 25:25 ±02:57 | 48.8% ±1.4 | 19:13 ±02:36 |
| TLESST | | 40:35 ±05:13 | | 35:45 | | 42:24 ±0:11 | | 39:23 ±04:10 |

* Only one TGfU lesson

The key for the behaviours in the Table can be found in Table 9.

Conclusion

The data presented in this chapter has provided some important insights into the physical activity levels of the pupils at each of the case study schools, and specifically, the nature and type of activity experienced in 'traditional' and TGfU approaches to teaching games. The data reported has described the specific lesson behaviours that the pupils engaged in during these lessons and the relative lesson time allocated to them in 'traditional' and TGfU and approaches to teaching games. The findings also detailed the pupils' ability to rate their physical activity levels within these contexts. Specifically the data demonstrated how pupils at both schools differentiated between contrasting levels of physical activity, and in particular how they provided ratings of activity that clustered around the lower end of the PCERT scale. Furthermore, the data showed the ways in which the pupils made attempts to control, or 'regulate' their own levels of activity in different contexts for teaching games. As previous chapters have also shown (see chapter 5) the complexity of the teaching and learning contexts within which the pupils attempted to 'rate' and 'self-regulate' their levels of physical activity is somewhat obscured when quantitative data alone is presented. The data presented gave rise to issues that remain unanswered, and are unanswerable using only quantitative methods. In order to further address research questions previously identified and to generate a deeper understanding of broader pedagogical issues and numerous factors that the teachers and pupils perceived as influencing 'rating' and 'regulating' physical activity, it was desirable to utilise qualitative approaches in this phase of my research. These issues are pursued in greater detail in chapters 7, 8 and 9.

*Chapter 7*

**Physical education, physical activity and effort perception: Through the eyes of teachers and pupils**

Physical education, physical activity and effort perception: Through the eyes of teachers and pupils

The need for, and the overriding significance of, this final phase of my work emerged progressively through the research. I became increasingly aware that given the type of questions that my research sought to address, and the complexity of the issues in physical education that I was concerned to explore, my research should not be restricted to a primarily quantitative approach for data collection. This chapter documents the ways in which I employed qualitative forms of enquiry in an attempt to 'develop the story as it is experienced by participants' (Woods, 1994, p. 311) and to engage more fully with some of the issues and complexities that emerged during the data collection reported in the previous chapters. The multi-site case study approach and combination of quantitative and qualitative methods that I employed in the final phase of my work sought a deeper and more holistic understanding of the provision and experiences (Stake, 2000). In keeping with an interpretive framework, I recognised the need to acknowledge the views of the participants and thus endeavoured to actively engage the teachers and the pupils in the research. I was particularly concerned to explore the various of discourses of physical education, physical activity and health that were present (or absent) within the case study schools and specifically, in teachers' pedagogical texts, and in pupils' own accounts of their experiences of those texts. Stephen Smith's (1992) contention that there is a need for research to become more aware of the 'lifeworld' of physical education had come to have particular relevance for me. Smith (1992) asks;

> How might we recognise our involvement with children in physical activity contexts? How might we come to see more clearly where the child is and what the child is, what our relation to the child is, and how we might stand with a child in a given yet questionable world or meanings?
>
> (p. 63)

Smith extends his commentary by citing Beekham (1983);

> Seeing, but not being seen, hearing, but not being heard, that would be objective, quantifiable, reliable, and replicable. But would I understand? How would I know what children are doing? How would I know what the activity means to them or what they are learning if I am not 'really out there interacting with the children.'
>
> (Beekham, in Smith 1992, p. 64)

Being 'out there', and exploring the views, perceptions and opinions of the children (and teachers) involved in my research became a vital feature of my work. In this chapter I report;

- The specific issues that this final phase of the research sought to address and the sites (contexts) in which they were to be pursued;
- The fieldwork methods utilised and the rationale for their use;
- The procedures employed for the analysis of data.

Chapters 8 and 9 present and discuss the data arsing from this phase.

Using qualitative methods

Walford (2001) suggests that the design and execution of research in education, specifically research that has used methods of the natural sciences, has been described in rather idealised ways, where 'research is carefully planned in advance, predetermined methods and procedures are followed and 'results' are the inevitable conclusion' (p.1). Clearly, the reality of research in educational settings is very different. In this respect, Gillham, (2000, p. vii) contends that the requirements of deductive theory testing, prior determination of methods and generalisable results 'are often unworkable and inappropriate in the real world. In his recent discussion of methodological issues in research in physical education and sport pedagogy, Curtner-Smith (2002) describes different paradigms, the common methods associated with them, and the limitations of each. Curtner-Smith (2002) concludes by proposing that in order for pedagogical practice in physical education to improve and develop further researchers should seek to work within multiple paradigms (See Chapter 3), and thus incorporate mixed methods. The limitations of an approach to research that relies heavily on a positivistic approach to enquiry for the description (and interpretation) of the complex and multifaceted nature of physical education, and physical education lessons, was 'laid bare' as my research evolved. The realisation that generating and reporting *solely* certain types of data, (such as pupil effort rating and heart rate), may mask or obscure the importance of the participants' values and meanings attached to these ratings, to physical activity in general and to versions of physical education, guided my research towards the pursuit of a greater understanding of the worlds

through the eyes of those involved; namely the teachers and pupils. I saw a need to develop a commitment to further extend and develop 'an openness to looking in many different ways' (Walford, 2001, p. 8). Engaging with the complexities of the teaching and learning environment and the arguably necessary and identifiable 'messiness' of research that attempts to do this, was therefore an important part of the research process and of my own development 'as a researcher'[1].

Setting and context

The two case study schools that featured in the previous chapter; Forestside Middle School and Greensands Upper School were also used as sites in this final phase of research. Brief descriptions of the key characteristics of each school have been provided in Chapter 6. To contextualise the data presented in the following chapters more fully, below I provide a detailed description of the schools, their physical education departments and facilities. The issues that I address have an unavoidable influence over curricula, teaching and learning, teachers and pupils, and thus need to be acknowledged as shaping expressions, experiences, and understandings of health and physical activity in physical education. The influences are pursued (and are also vividly apparent) in my discussion in Chapters 8 and 9.

Forestside Middle School

The physical education department at Forestside consisted of nine members of staff. Four of these staff members, two men and two women were full time 'specialists', whose teaching was largely, although not solely devoted to physical education. The remaining five departmental staff (two men and three women) were non-specialists whose physical education teaching contribution varied between 1 and 5 periods per week. Pupils received two timetabled physical education lessons of one hour in duration per week, one each being designated 'physical education' and 'games' lessons. 'Games' lessons were seasonally based and comprised 'traditional' activities of football, rugby, and cricket for boys and netball, hockey and rounders for girls. 'Physical education' lessons consisted of gymnastics, dance, and units of work designated as outdoor and adventurous activities and health-related fitness. Both

[1] There is a need here to recognise the problems associated with the role and identity of 'a researcher' and specifically, what actions, where and when signal engagement in research (see Burgess, 1984).

physical education and games were taught within mixed gender and ability groups in year five (ages 10 to 11). In year six (ages 11 to 12), physical education continued to be provided in mixed gender and ability groups, whilst games activities were taught in single sex and ability based groups. In years seven (ages 12 to 13) and eight (ages 13 to 14) both physical education and games were taught separately to boys and girls with games activities segregated further into ability groupings. As we will see (in Chapters 8 and 9) these characteristics were particularly relevant in establishing the form and focus of curricula and the 'ethos' of and for physical education at the school.

The school had a range of facilities for physical education that were typical of a middle school. Indoor facilities comprised a wooden floored gymnasium which was approximately the size of three badminton courts, and the use of the school dining hall in 'emergencies'. Outside, to the rear of the school was a tarmac playground space with three netball courts marked and a grass pitch area including a rugby pitch, a football pitch, a hockey pitch, and two sets of grid spaces. These pitches were re-marked and used for cricket and athletics in the summer term. Drainage on the pitch spaces appeared to be a problem in the winter when the grids and lower areas of the fields were regularly water logged and muddy. Recent building work to the school site had seen the construction of a new changing room block located at rear of the school with easier access for outside facilities. Resources and equipment available for games activities, and specifically traditional team games, were particularly good, in contrast to resources, for example for gymnastics, that were small in number, rather outdated and 'tired'. As we see in discussions in Chapter 8 these differences in resources reflected the priorities for physical education and privileging of particular discourses in the subject at Forestside.

The school provided opportunities for pupils to participate in 'a full range of competitive extra-curricular activities' and there was some provision at the school for pupils to participate in 'activities that might usually be outside of their normal experiences', for example climbing at an indoor centre and visits to National and international sporting events (Forestside Middle School Physical Education Departmental Handbook, p. 10). Extra-curricular activities that took place at the school consisted of basketball, athletics and cross-country for mixed groups, rugby, football and cricket for boys, and hockey, line dancing, and netball for girls. With the

exception of girls line dancing, the school participated in regular interschool fixtures in each of these activities.

Greensands Upper School

The physical education department at Greensands Upper School comprised six full time (3 female and 3 male) and 2 part-time (1 male and 1 female) specialist teachers of physical education and was a part of the 'Expressive Arts Faculty' at this popular and oversubscribed school. Nine other non-physical education school staff members contributed to the extra-curricular programme. Stereotypical gendered divisions were reflected in the organisation of male and female departments of physical education, but also actively reproduced in a gendered curriculum organisation. The school timetable was structured around a two-week rolling programme with pupils at key stage 3 and 4 receiving two hours of timetabled 'core' physical education lessons in 'week A' and 1 hour in 'week B'. Pupils followed a program of curriculum physical education at key stage 3 that comprised rugby, football, basketball, dance and gym for boys and netball, football, basketball, dance and gym for girls, whilst badminton, athletics, running tennis rounders and cricket were taught to mixed groups. At key stage 4, 'core' physical education provision included compulsory units of health related fitness and games, with the majority of curriculum time spent on an activity of the pupils choice from invasion games, racket games, gymnastics and athletics. GCSE (2 theory lessons and 3 practical lessons each fortnight) and 'A' level physical education were offered to pupils at key stage 4. In years 12 and 13 (post-compulsory education) 'recreational' physical education was offered to all pupils.

Greensands had excellent facilities for physical education provision including forty acres of grounds with rugby (2), soccer (3), hockey (1), pitches and an all weather cricket wicket. In the summer a grass athletics track and rounders and softball pitches were marked. Hard pitches included six netball courts six tennis courts and five further grass tennis courts. In November 2001 building began on a new development of multi sports playing surfaces for which the school was awarded funding of £450,000 from National Lottery and local government grants. Indoor facilities included a dance studio, a wooden floored gymnasium and a large sports hall. The department was well resourced in terms of equipment for all activity areas.

At Greensands all pupils were given the opportunity to participate in a range of extra-curricular activities from each of the NCPE activity areas at either recreational or competitive levels. Fencing, archery and girls-only football were examples of alternative extra-curricular activities that were offered. There was an expectation that those pupils taking GCSE physical education would represent Greensands in interschool sporting fixtures. These fixtures were offered as single sex activities at key stage 3 and 4 in all major team games, and also for mixed athletics and cross-country (for which the school had National recognition for its success), tennis, badminton and volleyball. The school had also recently been successful in a bid to the New Opportunities Fund to promote a range of 'out-of-hours' activities for pupils within physical education. These included football coaching for girls, golf for disadvantaged children and kick-boxing for disaffected boys. Certainly, at face value the provision of physical education at Greensands reflected arguably broader interests than those visible at Forestside. Yet, as subsequent discussion in Chapters 8 and 9 shows, provision retained a focus on established dominant discourses and interests in and of physical education.

## Fieldwork strategies: Listening to the voices of the participants

### Approaching observation

As described in detail in Chapter 6, video analysis and an accompanying systematic observation instrument (PETAI) were utilised to determine the behaviour of the pupils within the physical education lessons in phases two and four of my research. However, I was cognisant of the limitations of sole reliance on this approach and I specifically saw a need for generating a 'reality of physical education' that went beyond the scope of a 'controlled' observation method. As previously described (see chapter 3) I sought to establish a 'truer picture' through gathering different types of evidence in different ways, and therefore incorporated semi-structured observation into my fieldwork. I acknowledge that these two forms of observation are essentially quite different and yield different kinds of data, yet, in agreement with Gillham (2000) I support the use of, and arguably the need for, both in research in education and in physical education. The qualitative observation involved me 'watching what people do, listening to what they say, sometimes asking them clarifying questions' (Gillham, 2000) and writing field notes throughout my two terms at each case study school.

These semi-structured observations were documented via field notes taken during and after observation of physical education lessons, notes from unscheduled 'corridor' conversations with members of the physical education department, other school staff and pupils and ongoing reflection of my experiences in each of the schools. Below I pursue the other forms of qualitative inquiry that were employed during the final phase of my research.

Documentary collection.

As explained in chapter 3 my structured and semi-structured observations were accompanied by the collection of official school policy and other documents, including departmental handbooks, OFSTED reports, school prospectuses and newsletters. These provided important points of content and enabled triangulation of data in relation to particular issues (see below). The documents collected are listed in Appendix P.

Listening to the staff: Interviews

As discussed in chapter 3 informal (semi-structured) interviews with teachers and head teachers were used to gain an insight into the expression of physical education at each of the schools, to examine the values and versions of physical education that were being expressed and promoted, by teachers, and identify 'alternatives' that were being excluded or subordinated.

All interviews were conducted on the school premises, and in locations (including the physical education office, a vacant classroom and the head teacher's office) chosen by the interviewee. Interviews were scheduled at a time either after school, or in a free period and over a lunch break, that was previously agreed as convenient to head teachers and/or physical education teachers. I made efforts to put the teachers at ease by explaining the nature of the interview in advance. With physical education teachers I was able to establish positive relationships both throughout the course of the fieldwork and during the interview where the teachers felt they were able to provide open and honest responses to my questions. My regular contact with them throughout the two terms in which the schools were involved with the research served to generate

largely positive and collaborative relationships[2]. In contrast, my contact with the head teachers was minimal, and interviews were arranged and conducted in a more 'formal' manner. I wrote to the head teachers requesting an interview and outlining the nature of the interview (see Appendix Q). My relationship with the head teachers from both schools differed markedly from each other and also from the relationships that were established with physical education teachers. Apart from an initial letter of contact outlining the study procedures and seeking the head teachers' approval, my contact with the head teacher of Greensands, Mr Lara[3] was minimal. In contrast, I had more contact with Mr Dawe at Forestside. This was largely due to the fact that Mr Dawe was more visible around the school, involving himself in the life of the school through teaching a number of time-tabled subjects, including physical education, serving school dinners to pupils, and assisting with extra-curricular activities.

Interviews with physical education teachers, Mr Atkinson and Miss Apple at Greensands and Mr Hutchinson at Forestside, all took place at the end of the data collection period. The teachers displayed a willingness to be interviewed and were keen to share their views regarding physical education and their experiences of the research. The timing of these interviews represented a distinct advantage for collecting 'rich' data. During my research within each of the schools throughout the preceding two terms I was able to establish positive relationships with the teachers and this was arguably then reflected in the data that was forthcoming in interviews. As Toma (2000) contends, 'what makes subjective data good is close involvement between researchers and subject' (p.177). I felt the teachers had got to know me, and I them, through the preceding research. It seemed that the teachers now felt at ease engaging in conversation with someone who at this stage was largely regarded as a 'colleague' rather than an 'outsider' (Loughran and Gunstone, 1997).

The semi-structured interviews were planned to try to engage the teachers in a naturalistic conversational encounter or 'conversation with a purpose' (Burgess, 1984). I attempted to create an environment for the interviews that constituted 'an active site where the respondent's interpretative resources are explored and engaged to

[2] For various reasons one of the female physical education teachers chose to withdraw from the research three quarters of the way through data collection (see Appendix N) This was unfortunate in that meant it was not possible to interview this teacher.

[3] Throughout the research presented in this thesis pseudonyms are used to protect the anonymity of schools, teachers and pupils.

the full' where I encouraged the teachers to elaborate on their views (Potter and Wetherall, 1987, p. 164). The development of flexible interview agendas provided me with a series of topics that gave structure and guidance to the interviews and that acted as a prompt to pursue particular routes of questioning. To assess the adequacy of my interview agendas pilot interviews were conducted with one head teacher and one head of physical education. The topics identified for discussion in the interviews related to;

- the status and expression of physical education and school sport within their school and within the National Curriculum,
- physical activity guidelines for young people,
- physical activity promotion within the school generally and within physical lessons specifically,
- an evaluation of rating and regulating physical activity levels in the context of physical education. The specific interview agendas for physical teachers and head teachers are provided in Appendix R.

Listening to the pupils

In addressing the rather ironic notion that the views of children have largely been excluded from much educational research, Groves and Laws (2000) have argued that 'the only genuine *means to ascertain what the child's experiences of* NCPE are, is to give that child a 'voice', not only by asking the researcher's questions, but by playing the determination of what constitutes significant experience directly in the child's hands' (p.19). In this phase of my research I sought to give the children who participated in the fieldwork the opportunity to have their voices heard. I regarded the views of the pupils and the ways in which they experienced and perceived physical education, physical activity and the PCERT scale as a critical perspective to pursue, in relation to both future curriculum and pedagogical developments at the schools, and prospective future research activities. I chose to conduct a series of eight focus group interviews with the pupils who had participated in the lessons featuring the use of the PCERT. I sought to use focus groups to gain insights into and a better understanding of pupil experiences of physical education and physical activity at each of the case

study schools, and of the ways in which pupils had used the PCERT scale in their physical education lessons.

Using focus groups with children

Krueger (1994) suggests that a focus group interview, as a socially orientated research procedure, places participants in a natural, real life situation as opposed to a controlled experimental situation. A more natural environment captures the dynamics of group interactions and prompts increased openness by respondents. Within the context of this study focus groups were seen as advantageous as compared with semi-structured researcher-pupil interviews or questionnaires. I regarded a focus group setting as more likely to promote the creation of an open permissive, environment where children's talk could be promoted and encouraged through discussion, interaction and the expressing of opinion, attitudes and beliefs (Rossman and Rallis, 1998). I wanted to promote active, open, and revealing discussion in the focus group settings and encouraged the children to answer honestly and without fear of reprisal. All children were reminded of the anonymity of their answers and confidentiality was ensured throughout. Not 'going in cold' to conduct the focus groups represented a distinct advantage in terms of the quality of the data that I was able to collect in the discussions. I felt that over the previous two terms of the research I had successfully established positive relationships with all of the children, such that they felt at ease in my presence[4]. I knew all the children by name and this helped maintain flexibility yet control in the discussions and direct and prompt discussion from all focus group participants. The advantages discussed above in relation to my approach to interviewing the physical teachers can be similarly applied here, with the focus groups being characterised by a familiarity and friendliness between myself and the pupils that had developed over the course of the research.

The focus groups were conducted within the school context, i.e., on school premises and during normal school hours. Arranging a convenient time for the focus groups proved problematic. I did not want to withdraw the pupils from physical education lessons, nor did I wish to withdraw them from other curricula areas, or encroach upon their valuable break-time. Ultimately (and unfortunately), I had to use physical

[4] Despite some inconsistencies and difficulties regarding their perception of my 'role' and the way in which that necessarily changed at different times throughout the research.

education curriculum time to conduct the focus groups. The group setting was managed in an attempt to establish a relaxed, informal environment where the pupils felt willing and able to express their opinion openly, willingly and honestly. A classroom that was familiar to the pupils was used. Chairs and tables were arranged in a circle around a table to enable pupils face each other (Krueger, 1994). I also sat in this circle. I focussed comments, questioning and non-verbal behaviour (for example, eye contact) to the group as a whole and to individuals within the group as appropriate to the development of discussions. During the focus groups I remained cognisant of the notion that whilst focus groups can permit an atmosphere that is conducive to children offering in-depth responses, they can be limited with respect to 'potential peer influence and the demands on participants from the social processes involved in group discussion' (Harris, 1994b, p.144). Confidentiality of response was assured. All pupils within the group were encouraged to offer responses to the questions and to engage in conversation with me and with the other pupils.

The size of the focus groups was small enough for the participants to have the opportunity to share insights, yet large enough to provide diversity of perceptions (Krueger, 1994). In agreement with Breakwell (1990) they comprised between five and seven children. The membership of these groups was decided between myself and the physical education teacher. We based the composition upon, (i) physical education class groups, (ii) friendship groupings, and (iii) including a range of pupils that were more or less able and motivated within physical education in each of the groups. Inevitably, some 'unauthorised swapping' by the pupils occurred and on the days of each of the focus groups the pupils that attended were not always those that had been intended. However, as usually between five and seven children appeared, often in friendship groups, I decided to continue with the focus groups rather than insist upon the prior grouping arrangements.

The pupils that participated in the focus groups had participated in all previous aspects of the research in this phase. At Forestside both the boys' classes and the girls' classes were of mixed ability in physical education and this mix was well represented within each of the focus groups. Each of the focus groups at Forestside contained different 'characters' within physical education contexts. Some of the boys were the 'trendy', 'cool', extravert and outspoken pupils whose behaviour was often central within the lessons, whilst others remained 'in the background', were more reserved

and let lessons happen around them. At Greensands the contrast between the composition of the girls' and boys' group was stark. The girls were all GCSE examination pupils and this was reflected in their (higher) physical ability levels and their (high levels of) commitment to physical education generally. A dynamic characteristic of the group became apparent as the lesson observations progressed. Specifically, Miss Apple (physical education teacher at Greensands) explained she regarded divisions to exist within the class between the 'image' girls and the 'intelligent' girls and the 'in-betweeners'. The 'image' girls were typically of higher ability across a variety of activity areas (particularly in games lessons), and were frequently more concerned with what they were wearing and 'looking good' rather than involving themselves fully in the lessons. In contrast, the 'intelligent' girls were less physically competent across a range of activities and often excelled in individual sports (such as swimming or cross-country). These girls were more reserved but applied themselves consistently in their lessons. The remaining girls in the group 'swung' from group to group from week to week. They were seemingly uncertain of the group with which membership was acceptable and preferable. Nevertheless, despite these hidden groupings the class as a whole were amiable, hardworking and enthusiastic. In contrast the boys 'core' physical education class at Greensands comprised a much broader range of pupils both in terms of physical competence and enthusiasm for physical education. Certainly, some of the boys were able performers and enjoyed aspects of physical education, whilst for others physical education lessons were disliked and frequently avoided, through illness, injury, forgetting kit or unauthorised absence.

Whilst Kruger (1994) contends that quality answers are given to quality questions, as Fontana and Frey (2000) point out, 'asking questions and getting answers is a much harder task than it may seem at first' (p. 645). A series of themes for discussion were developed prior to the focus groups and were included, with further questions and prompts on a focus group agenda. The agenda for the focus groups can be found in Appendix R. The key issues discussed were;

- The pupils' likes and dislikes in physical education
- The pupils' awareness of age appropriate physical activity recommendations,
- The contribution of physical education to these recommendations.

- The pupils' understanding of the PCERT in terms of improving their ability to recognise physical activity levels in physical education, specifically in relation to, a) their understanding and 'rating' of physical activity within physical education lessons and, b) promoting physical activity through asking pupils to (self) 'regulate' different activity levels in physical education lessons.

It is commonplace for discussions in interviews or focus groups to use audiotape to create a permanent record of participants' responses that can then transcribed at a later date. I chose to use a small dictaphone to record the interviews with head teachers and physical education teachers. However, using this approach in focus group situations makes the identification of individual speakers very difficult unless the interviewer has included frequent reference to the speakers by name. In agreement with Lewis (1992) I considered that interjections by the interviewer would create a false tone in the interview and potentially disrupt the flow of children's discussions. I therefore considered the use of video-recording the focus groups to overcome this issue, yet was cognisant of the hesitations made by Krueger (1994) who has suggested that video-recording can be obtrusive and distort responses by altering the environment and affecting the spontaneity of participants. I decided that to ensure that the focus group discussions could be recorded effectively it was necessary to use both audiotape and videotape. To be as unobtrusive as possible a small handheld video camera was placed on a tripod in one corner of the room and a flat wireless table-top microphone used. This created a 'back up' copy of the audio-recording and enabled important visual signs and signals to be captured and interpreted during subsequent transcription, for example, body position, pointing, glancing. The video-recording also assisted in identifying the speaker in the discussions. The tape recordings of the interviews and focus groups were subsequently transcribed verbatim and analysed as I detail below.

Data Analysis: Dealing with multiple sources and multiple methods.

Qualitative researchers often utilise different but interconnected practices to generate various forms of data, and different methods that 'make the world visible in a different way' (Denzin and Lincoln, 2000, p.1). In agreement with Denzin and Lincoln (2000) I regarded a multiple method approach to the research process as one where the researcher creates a 'bricolage' acting to piece-together the complexity of the given research situation and also enabling the process of triangulation to take place. In the

research presented in this thesis I triangulated my data by bringing together different data from different sources, gathered at different times to bear on the research questions being investigated. In this way triangulation is apparent through;

> ...the comparison of data relating to the same phenomenon but deriving from different phases of the fieldwork, different points in the temporal cycle occurring in the setting, or, as in respondent validation, the accounts of different participants involved in the setting
>
> (Hammersley and Atkinson, 1983, p.198)

Denzin and Lincoln (2000, p.2) suggest triangulation can involve reference to both qualitative and quantitative forms of data and adds 'rigor, breadth, and depth to any investigation'. My rationale for triangulating data was underpinned by the notion of searching for similarities and differences within the data collected, not to identify or provide 'verification' of 'one truth' from different sources. Triangulation featured the use of multiple sources of data and approaches to data collection within each case study school to bring a full range of data to bear on any specific issue. For example, I searched for similar and contrasting themes emerging throughout the different forms of data collected via observation (structured and semi-structured), through discussions in interviews and focus groups and informal conversations, in the use of physical activity and effort rating data and through collection of official documents and policy texts.

Analysing interview and focus group transcripts

I acknowledged the recommendations of Cote et al. (1993) who point out that there is no one correct way of analysing qualitative data, but who suggest that qualitative researchers should attempt to increase the 'trustworthiness' (Lincoln and Guba, 1985) of their research process by developing a clear framework for analysis. Each of the interviews and focus groups conducted in my research were recorded and transcribed verbatim (see Walford, 2001, for a discussion on the benefits and shortcomings of tape-recording and transcribing). An example of an interview transcript and the protocol used in the transcription are provided in Appendix S. In agreement with Silverman (1998) the process of transcribing my interviews and focussed discussions did not represent 'a technical detail prior to the main business of the analysis' (p.263). Rather, transcription was an essential research activity that was a vital and informative

aspect of the analysis process itself where I attempted to engage with the data through listening (and re-listening) to the tapes, making notes, and transcribing the dialogue. The process was helpful in gaining a close reading of the body of discourse in the interviews (Potter and Wetherell, 1987), while bringing structure and meaning to it, and teasing out the perspectives of the participants 'through their own eyes'. I regarded this process as one of 'de-contextualisation and re-contextualisation' where 'much work in the analysis process consists of 'taking apart' (into smaller pieces), the final goal is the emergence of a larger, consolidated picture' (Tesch, 1990, p.97). In my analysis of the data I adopted an interpretive stance, seeking a reflexive, reactive interaction between myself and the data, where I maintained a sense of 'holism' of the interview striving not to fragment the data or lose the synergy of the whole (Cohen, Mannion and Morrison, 2000). I utilised a flexible approach to the analysis of data generated through interviews and focus groups in that I did not follow any specific prescribed 'method' for analysis of transcripts. I had a desire to let the data 'speak for itself' rather than to try to rigidly adhere to the certain principles or procedures. At this stage I was cognisant to acknowledge the discussions of Kerry and Armour (2000). They cite Bain (1995) who contends that much qualitative research employs methods such as unstructured observation and interviews and then 'retains an objective stance in interpreting the data', thus failing to provide 'an in-depth analysis of meaning as constructed by the participants' (Bain, 1995, p. 243). In this respect my analysis procedures drew from the suggestions of Rossman and Rallis (1998)[5] whilst I also acknowledged the stages described by Tesch (1990) to help me analyse my data. More specifically, during my analysis I;

- Got a sense of the 'whole' by reading through all of the transcriptions carefully and jotted down ideas and interpretations in the margins as they came to mind;
- I picked one interview and went through it asking myself, What is this about? I tried not to think about 'substance' of the information, but rather its underlying meaning. I wrote my thoughts in the margin;
- I completed this for a number of transcripts, going through the transcript several times and made a list of all the recurring themes and topics. I clustered

[5] Rossman and Rallis (1998) have suggested six phases that might be used to help make data gathered through interviews more manageable, these phases comprise of; organising the data, familiarising yourself with the data, generating categories, themes and patterns, coding the data, searching for alternative explanations of the data, and writing the report.

together similar topics and formed these topics into themes that might I considered as major topics, unique topics and leftovers;

- I then went back to the data and searched for the topics again, and to identify any newly emerging or absent topics.

(Adapted from Tesch, 1990, p.142-145)

Via my notes in the margins of transcription texts I tried to capture and record my observations, interpretations and hunches about the dialogue. From the identification of topics that occurred and reoccurred I subsequently developed a series of conceptual categories that I felt represented the dominant themes of the analysis, and captured the substance of the topics my research was concerned to address. Each of the interviews and focus groups raised some similar issues but also some unique issues that could not easily be located in a specific category. I chose not to 'code' the data in the form of number, or abbreviations of rigid categories. I felt there was the need to recognise that despite some of the identified categories being distinct, in important ways the categories overlapped and related to each other.

Making some analytic sense of the transcripts also involved the grouping of the replies. In undertaking this process, Berg (1998) notes that, 'you simply seek naturally occurring classes of things, persons, and events, and other important characteristics of these items. In other words, you look for similarities and dissimilarities in the data' (1998, p.92). To familiarise myself with, and really get 'inside' the data I developed an indexing process. After initially noting the major topics (and relevant subthemes) of interest in the margins of the transcript, indexing took place where each major topic was identified and all the instances of reference to a theme with an identifying code to denote the transcript details and a brief verbatim extract were included on a summary sheet. The school code, respondent identity, transcript page number and line numbers were used to refer to an indexed transcript item. For example, GSAA1134-35 referred to; GS(school, Greensands), AA(teacher, Adam Atkinson), 11(page number), 34-45(Line numbers). Despite being time-consuming, indexing permitted much easier location of particular items during later stages of analysis, and in the 'writing-up' of research. Appendix S contains an example from a typical indexing sheet.

Analyses, interpretations and negotiated meanings

Maintaining close reflection upon the personal dimensions of my reading, interpretation and representation of the data was a desirable characteristic to promote the 'trustworthiness' (Lincoln and Guba, 1985) of my research and my interpretations of the data. I chose to address these issues through a collaborative peer review process. Lincoln and Guba (1985) define this as involving a colleague who acts as a 'devils advocate', where they ask demanding questions regarding methods, meanings and interpretations. Specifically, after reading the transcripts, making interpretative notes in the margin and generating conceptual categories, I met with a colleague who had undertaken a similar process and acted a 'critical friend'. We revisited the transcripts and debated the meaning of the text and dialogue and discussed the similarities and differences that arose throughout our interpretations of the different transcripts. Each transcript was read and reread and any issues of ambiguity regarding participants' responses and the creation of emerging categories and themes was discussed and debated. This process was invaluable with regard to helping me develop and establish rigour in relation to the themes and categories that emerged from the data, and identify notable absences and omissions in the discussions. Below I provide an exert from an interview transcript with Dave, a physical teacher at Forestside, and describe the ways in which the meanings from the text were interpreted and *negotiated.*

In the text provided below the multiple aims of physical education and the ways in which these are prioritised in planning and practice are under discussion.

Dave: It does, (the aims of physical education)...it varies from lesson to lesson because what we, what I try to do and it was something can out in our OFSTED report, and something that we were actually encouraged to do beforehand, was take the thing from the, umm, National Literacy and Numeracy strategy. Where, umm, it sounds *like a really strange, a really obvious* thing, but the children are told before the lesson what they are going to do. You know, why, at the end of the lesson this is what we intend, this is what you should have learned, and this is what you should be able to do by the end of this lesson. So, yes. Umm, in that case, yes we would do, because we would say, 'okay then, now you're going to learn how to do a defensive header, okay'. And that's a skill thing.

MY: Mmm

Dave: Okay, so we might say, 'okay then, step back, you want to get in line, are you clearing over an attacker, are you clearing it behind the goal?' Or whatever. So you might learn that skill, then the next time or even later on in that lesson, say, 'okay then, at what point in the game are you going to learn a defensive header', so then you are more, so you've done the skill bit, you target the principle or tactic of the game. Then you would try, there would be an underlying thing of the exercise as well. But not, obviously, 'okay then, we are going to do a lesson now where all we are going to concentrate on', we do it occasionally, we have done at times. You see on here (shows curricular planning framework) we spend, this is the way it works out at this time, umm, health related fitness link with...*?*[6], and basketball as well, so they did one week of one and one of the other.

Dave, (FSDH8 39-56)

From our independent readings and interpretations of the text, the topic of Dave's pedagogical approach emerged. Specifically, this centred upon the dialogue relating to the prioritisation of learning outcomes that featured in his pedagogical text and the extent to which this reflected a commitment to 'performance' pedagogy, namely one that privileges skill learning and emphasises development of technique (see Penney and Waring, 2000). We agreed in principle that skill learning in physical education was considered a priority for Dave, for example, visible in the association of informing the pupils about the aims of the lesson whilst relating these aims solely to 'a skill thing'. Despite this similarity in our readings, a degree of debate ensued regarding Dave's particular pedagogical approach. My colleague questioned the use of a 'traditional' pedagogy, and highlighted (through his notes in the margins and our emergent discussions) Dave's use of questioning as representing a possible commitment to an 'understanding' approach to the teaching of games, (for example, 'at what point in the game are you going to learn a defensive header...you target the principle or tactic of the game'). In contrast, my own comments in the margin reflected Dave's adoption of a 'traditional' pedagogy where I interpreted his pedagogical text as dominated by an emphasis on skill learning in games activities. Discussion continued here as to the meaning of the responses given and in particular their relevance in the teaching contexts I had observed. In these discussions I referred to my lesson observations, including unstructured observation, (field notes and dialogue reporting) and systematic observation of pupil behaviour (specifically, the high quantity of time devoted to skill learning, see Chapter 6) to support my

[6] * undecipherable speech – see transcription notation (Appendix S).

interpretation of the dominant pedagogical approach. After these discussions, and placing the dialogue in context, we agreed upon interpretation of the dialogue that reflected the 'traditional' pedagogical commitments of the teacher concerned. (See Chapters 8 and 9 for a broader discussion of the pedagogical approach at Forestside).

Subsequent discussions regarding this section of interview transcript further reinforced these interpretations. We agreed that skill learning was afforded greater status in Dave's teaching than 'other' learning, and in particular learning associated with issues of health and physical activity. For example, 'Then you would try, there would be an underlying thing of the exercise as well. But not, *obviously*, okay then, we are going to do a lesson now where all we are going to concentrate on...' (emphasis added). Evident in this statement is the open privileging of agendas other than health and HRE, where health issues are seen to permeate through the activity areas, but have no real status within them, arguably leaving them destined to be a focus of practices that are piecemeal and 'hit and miss', as '*obviously*' physical education could not (and should not?) '*concentrate*' on HRE.

Throughout readings of the transcripts and subsequent discussions and interpretations, interviews were also read 'as a whole' and not as isolated and unconnected 'chunks' of text. For example, where similar themes and topics emerged throughout the interviews these were read and placed into context alongside other relevant sections. In this respect, the earlier remark shown below made by Dave was particularly relevant in framing our discussions and informing and developing debate regarding issues of physical activity in physical education;

> I don't think the sole purpose of PE is for, to encourage people to exercise. Yes it is, but there is a purpose, you are trying to teach children the mechanics of games, the principles of games.
>
> Dave (FSDH8 20-22)

Member Checking

To solicit the views of the head teachers and physical education teachers regarding the accuracy of the transcribed conversations, each received a copy of the transcribed interview. After allowing each teacher time to read the transcript we arranged a mutually convenient time to meet to review the transcript. In the case of the head

teachers this review meeting did not take place. Instead, each head indicated verbally that the interview transcription appeared 'fine' and, in their opinion, accurately represented the discussions that took place. I also took the data 'back' to the physical education teachers in brief informal meetings during which each teacher agreed to the accuracy of the transcriptions. It is important to acknowledge here that I felt that the 'member checking' process was largely undertaken by the teachers in a 'matter of fact' fashion where they were reluctant to question the accounts both due to a degree uncertainty and possible unwillingness. The latter was largely due to the timing of the member checking towards the end of the term when the teachers were notably 'tired' and 'busy' in school.

Themes for physical education, physical activity and effort perception.

In the following chapters I present the data in relation to the themes and issues identified below that emerged to generate a picture of physical education, physical activity provision and effort perception at each of the schools. Figure 13 below identifies the major themes that ultimately emerged from data collected from interviews with head teachers, physical education teachers and via focus group discussions with pupils.

Figure 13: Teachers' and pupils' perceptions of physical education and physical activity

| | |
|---|---|
| **Physical education teachers** | Aims, agenda, policies and practices.<br>Pedagogy in physical education<br>Physical activity and physical education: what focus? |
| **Head Teachers** | The aims and position of physical education and school sport<br>Extra-curricular form, focus and priority<br>Physical activity in physical education: 'Pie in the sky'? |
| **Pupils** | What is physical education and what is important in physical education?<br>Physical education 'on our terms': boring and being bothered.<br>Teachers and teaching<br>Physical activity and physical education<br>Do pupils expect to be active?<br>Certain activities are more active than others<br>Do pupils want to be active? |

In Chapter 9 I also pursue the findings from qualitative data collection undertaken via interviews and focus groups during the implementation of the PCERT within games contexts. The issues that emerged are discussed in sections that relate to the views of the teachers and the pupils about the 'rating' and the 'self-regulation' of physical activity in physical education. The emerging themes are shown in Figure 14 below. The data reported in Chapters 8 and 9 highlight the multiple agendas and discourses at play in any single context of physical education, and ways in which inconsistencies, and tensions may consequently arise for both teachers and pupils. We see very clearly the range of understandings and views of what the 'essence' of physical education is, and should be, and more specifically, of what the place and version of 'health' in that is. The discussion tries to capture the complexities of curriculum and pedagogical developments in physical education as we see that many people and many factors are ultimately involved in shaping developments (in teaching and learning) in particular ways. Constraints upon, and possibilities for particular 'slippage' in the interpretation and implementation of policy (see Chapter 1 and Chapter 9) are very apparent in the two school contexts.

Figure 14: Physical Education and effort perception: rating and regulating physical activity

| | **Rating** | **Regulation** |
|---|---|---|
| **Physical education teachers** | ▪ Perceptions of pupil ratings: Reflections and reality.<br>▪ Physical and environmental : what the pupils felt, what the weather was like.<br>▪ Establishing and maintaining 'status' in physical education | ▪ Approaching regulating effort: Planning, potential, problems<br>▪ A question of approach<br>▪ Roles and responsibilities<br>▪ Able and interested?<br>▪ Evaluation and effectiveness |
| **Pupils** | ▪ How I felt: Physical feelings associated with activity<br>▪ What's it like outside: The weather.<br>▪ Who was there: not standing out, looking 'fit' and being 'cool'.<br>▪ What was I doing: Content, context and pedagogy. | ▪ Pedagogical factors:<br>o Teaching approach<br>o Playing position and role<br>o Lesson content<br>▪ Environmental, social, personal:<br>o Not being bothered<br>o What's the weather like?<br>o What others were doing<br>o Who was there? |

# Chapter 8

# Physical education and physical activity at the case study schools

Physical education and physical activity at the case study schools

Throughout the phases of the research presented in chapters 4, 5 and 6 the complexity of issues surrounding physical activity in physical education came to the fore. The physical activity data reported in Chapter 6 cannot be viewed in isolation. Rather, it needs to be acknowledged as influenced by the complex contexts in which it arises. The following two chapters therefore seek to give that data further meaning by providing a deeper understanding of the school contexts and the views of the teachers and pupils involved in the lessons. In this chapter I draw attention to the ways in which the prevailing aims and agendas for physical education in the two schools were ultimately evident in teachers' and pupils' attitudes towards, and understandings of, discourses of health and physical activity in physical education. I argue that it is only by this more holistic, and necessarily qualitative investigation of the pedagogical texts of physical education teachers, and the pedagogical experiences of pupils, that we can either fully understand the present, or seek to influence future practices. Throughout this final phase of my research I was concerned to pursue the expressions of discourses associated with the promotion of physical activity at the case study schools and the extent to which these could be positioned alongside and not subordinated by other more traditional discourses of physical education and games teaching specifically. How could the use of the PCERT in physical education contexts provide a prompt and focus for physical education teachers to be more creative in their interpretation and implementation of the NCPE, and for pupils to gain a deeper and more meaningful knowledge and understanding of *being physically active in games* lessons? Would such development be possible and acceptable (to teachers and pupils) in the case study schools? Discussion in this chapter addresses a number of key issues that were ultimately shown to shape teachers' and pupils' reactions to and experiences of lessons that attempted to focus attention on physical activity.

Physical education at Greensands and Forestside: Aims and agendas, policies and practices

The NCPE (and its numerous revisions) articulates a particular version of, and presents a curricula framework for, physical education where the achievement of sporting excellence is located and at the forefront of teaching and learning priorities

(see Penney and Evans, 1999). In Forestside school policy documentation, issues of sporting performance and physical competence were similarly located in this privileged position with other interests of physical education largely marginalized, and yet others (for example, issues associated with participation in lifelong physical activity) frequently excluded. Interests associated with health and activity were seemingly afforded little status and were 'tagged on' as an afterthought. It was stated that;

> Physical education contributes to the overall education of the pupils. It promotes physical development and physical competence; contributes to an appreciation of skilful and creative performances across the areas of activity and, through experience, teaches pupils to know about the benefits of and to value participation in physical activity while at school and throughout life.
>
> Physical education has the following aims:
>
> - To provide an enjoyable purposeful framework for the learning of physical skills
> - To develop physical confidence and competence
> - To develop problem solving skills
> - To develop interpersonal skills and team work
> - To introduce the pupils to a wide variety of sports
> - To encourage the development of qualities of commitment, fairness and enthusiasm
> - To foster positive self esteem through physical confidence and competence
> - To develop an appreciation of skilful and creative performances across the areas of activity
> - To provide opportunities through the extra-curricular framework for in increased participation
> - To help the pupils understand the changes that can occur in their bodies, through exercise over a short period of time and extended periods.
>
> (Forestside Policy Statement for physical education, 1999)

The version of physical education that had greatest priority for Dave (the head of physical education), and for the school, was one where interests associated with sport and performance and the development of physical skills through participation in a range of sporting activities were privileged, and where interests associated with physical activity and health (Harris, 2000), moral development (Theodoulides and Armour, 2001) and citizenship (Laker, 2000) did not feature significantly. Dave explained that;

> I think the majority of people (other staff) will probably think that the purpose of PE is to teach children to play games. Erm, and, it was taught like that here for quite a while I think, and games took up most of the time. There wasn't much consideration for things like, umm, understanding the effects of exercise and healthy lifestyles and things like that. I think people generally seem to think that PE teaches children how to play games....yes, it's sort of err, it's seen as *sport* rather than physical activity and participation.
>
> (FSDH115-20)

At Greensands a different emphasis emerged in department policy documentation. Notably, the texts gave greater prominence to more holistic 'whole school' aims such as to 'foster each student's full potential in all areas of school life', and to 'enable our students to approach adult life with confidence' (Greensands School Prospectus, 2000, p.3). Discourses of health and physical activity were also accorded specific attention; 'To put it simply, we want students to enjoy themselves, learn something, become healthier and get on with each other' (Physical Education Department Curriculum Policy Statement, 2001, p. 1). The intended learning outcomes detailed in the department handbook have some similarities to the aims articulated at Forestside, but can also be seen to give greater prominence to 'other' discourses;

> Students will:
> - Have experienced the joy inherent in movement and performance
> - Developed confidence and competence in performing physical skills
> - Value the contribution of physical exercise towards health and well-being
> - Appreciate the importance of fair play, be able to cope with success and failure and get on with others in competitive and co-operative situations.
> - Appreciate and understand the importance of valuing the contribution of others, whether male or female, whatever their level of ability, or social or cultural background.
>
> (Physical Education Department Curriculum Policy Statement, 2001, p. 2)

Adam (The head of department) considered that physical education was a subject valued (largely in certain terms) at the school by the head teacher (see below) and other staff. He suggested that 'non-physical education' school staff were probably not aware of the potential contribution made by the subject to pupils 'physical skills' and 'fitness', yet it would be regarded as important in terms of;

> The positive attitude or the enjoyment aspect. I think they (other staff) would say about the social thing as well...it is seen as a community thing, and as a sort of base for the social thing again, personal and social education...it gets strong support in the school, umm, for what I would say it makes the students feel as if

they belong. It gives them that positive attitude to school, so I think people would see it like that in terms of being very important.

(GSAA121-26)

However, in a key area of departmental policy, assessment, there was a very obvious reversion to the privileging of traditional, performance-based sporting interests. The assessment policy at Greensands stated that pupil achievement in physical education was seen through; 'improvements *in performance'*, 'in effort and in the support and help of others' and where students are encouraged to 'participate in sport in and out of school' and *'fulfil their sporting potential'* (Greensands physical education handbook, p. 18, emphases added).

Pedagogy in physical education

At Forestside the physical education department's policy guidelines for teaching physical education reflected a 'traditional' pedagogy (Penney and Waring, 1999). Departmental teaching guidelines suggested that lesson structure should reflect the following breakdown of format and progression 'warm up-skills/movement-modified game-concluding activity' (Forestside physical education departmental handbook, 1999). The development of fundamental motor skills and performance in games and sports were explicitly described, and portrayed as the key focus of attention in both official policy documentation and the teaching practices observed. At Forestside discourses of health and physical activity did not feature significantly in teaching practices and were largely overshadowed by discourses associated with what was regarded as 'proper physical education', namely the development of physical skills and the pursuit of sporting excellence;

I don't think there's an emphasis on exercise (in physical education). But then, I don't think the sole purpose of PE is for, to encourage people to do exercise. Yes, it is, but there is a purpose, you are trying to teach children the mechanics of games, the principles of games...as well have exercise. But that is not the main purpose.

(Dave, FSDH818-24)

Dave placed the highest emphasis on teaching the boys specific football skills and techniques rather than placing them in game situations (see Chapter 6) or developing their knowledge and understanding of 'other' learning in physical education. Each lesson the boys asked Dave if they were 'having a match?' Dave's responses typically

sought to highlight the limited time available for physical education and thus in making decisions about teaching and learning priorities he firmly established the skill-learning aspects of the lessons as of fundamental importance with game play secondary. Full and/or modified games were not an integral and important aspect of the lesson itself. Rather pupils were 'allowed' a 'match' (often played on a full sized pitch with two teams of 12-14) at the end of the lesson. This was presented as a 'reward' for successful participation in the 'more important' skill-based aspects of each lesson. The following example from my field notes from one of the football lessons observed illustrates this prioritisation vividly;

> It's (not having a game) got nothing to do with whether we are allowed a match or not. Now these lessons are short enough, and there's a lot of work to be done in these lessons, okay. **The purpose of these lessons is not to play a game**, I want you to play matches and things as much as possible, but the reason we will play matches is to develop the skills and drills that we have practiced beforehand, **but they are the most important, raising your skill levels**. So we are going to practice those skills as much as I feel we need to. And then we are going to start putting them into game situations, but knowing what we are doing, but knowing what we are doing in the game situation. So, there's a purpose behind it.
>
> (Forestside, DH, lesson 2, 14.01.00)

In the girls' netball lessons observed at Forestside, a different teacher, Mrs Howe displayed a similar pedagogy. Netball lessons were dominated by a focus on skill practices. Specific drills were frequently repeated in different lessons. Match playing in netball took place at the end of the lessons after lengthy periods of ball handling and passing and receiving practices (See chapter 6).

In many respects the approaches to teaching and learning at Greensands were different to those observed at Forestside. They were certainly more flexible and pupil-centred, guided by teacher questioning, informed by pupil understanding and designed to encourage pupil autonomy responsibility. In the girls' netball class, Kate (the physical education teacher) frequently employed teaching strategies that promoted pupil independence and responsibility. Typically, she allocated specific lesson tasks to individuals or small groups, such as the design and organisation of warm up, or devising their own drills, practices or game playing strategies.

However, despite lessons featuring 'active input' from pupils in these ways, it is equally important to note that in other important respects, they were denied this input. Critically, the context of lessons and desirable pupil learning outcomes in both girls' netball and boys' football remained driven by a concern primarily with the development of particular physical skills and knowledge and understanding of 'game play'. Learning associated with physical activity and health was largely absent and overlooked amidst a focus upon developing confidence and competence in performing physical skills. Kate regarded including appropriate physical activity in lessons as a source of some tension. She considered educating children about the benefits of regular participation in activity as a valuable aspect of her role as a physical education teacher, yet identified 'other' interests within physical education as 'more important'. For Kate the 'real' focus of physical education at Greensands was developing competence in physical skills and particularly in competitive games;

> I think it's quite nice for them to have a competitive team game. I don't think it's a good idea that it's been 'dropped' (NCPE, QCA/DfEE 1999, key stage 4[1] orders)...I like to make them (physical education pupils at Greensands) do a team game. They do enjoy it as well. They might think that they don't. If you gave them the option they'd probably say, 'no we don't want to do it', but then they actually quite enjoy it.
>
> (GSKA324-28)

These priorities were reinforced further in the context of General Certificate Secondary Education (GCSE) physical education. Kate explained that in this context she specifically sought to engage the pupils in fundamental and advanced skill-learning and encourage them to understand and develop strategies and tactics of game-play. In a non-exam context teaching boys, fellow teacher at Greensands, Adam, had a different priority, but also clearly displayed elements of a 'traditional' pedagogy. Specifically, Adam sought to keep the boys 'involved' in the lessons through ensuring that they were engaged in either football specific drills or match play. He saw a 'traditional' approach, characteristically didactic, as helping him to establish and monitor discipline and control with what he considered to be a potentially volatile and sometimes confrontational group of boys. The first six lessons observed typically comprised a warm-up activity, development of a lesson theme (for example, keeping possession or penetration, switching play) using teacher led drills, practices and small

[1] See Chapter 2 for a description of the most recent NCPE

sided-games, and a larger sided game to conclude the lesson (see Appendix M). The warm up was regarded as a key opportunity for physical activity and an occasion in which physical activity could legitimately be the focus.

A focus for physical activity

Teachers at both schools included opportunities for pupils to participate in physical activity largely within the 'warm up' component of the lessons. The football and netball activity profiles at Forestside and Greensands could therefore be expected to mirror my previous research findings (see Chapter 5), with the warm-up representing the most physically active lesson component. Kate suggested that strategies adopted at Greensands for including physical activity in physical education frequently involved delivering 'active chunks' often at the start of the lesson and planned as a warm-up activity;

> What I started to do with one of my groups was make them run just a 5 minute warm-up...I mean the main time they (the pupils) do it (engage in physical activity) is the warm up. You try and you know, have a little bit of activity when they are actually doing the warm up and to some of them that's the most activity they'll do for the whole lesson.
>
> (GSKA55-8)

However, as indicated above, Kate did not regard including (and particularly integrating) physical activity within the remainder of the lessons as legitimate or important for children's learning. She saw a conscious focus on activity as 'losing' available lesson time and detracting from other more important (skill and performance based) learning in physical education;

> I mean, you end up with a 45 lesson, if you do a short warm up you've lost 5 minutes, probably by the time you've done the register, and you know everything else. You've lost 5 minutes and you're left with 40 minutes. If you want to have a reasonable game at the end you need to leave a good 15 minutes. So suddenly, you're really, you know, if you do like a 10 minute, you know, try and incorporate a sort of increased level of activity for 10 minutes, you're losing quite a lot of lesson time.
>
> (GSKA511-16)

Like Kate, Adam admitted that; 'I still try with the five minutes (activity at the start of the lesson) trying to make the warm up, that's usually the most strenuous part of the lesson, the warm up' (GSAA742-44). He also regarded prioritising physical activity

within lessons as representing a 'conflict of interest' within the subject and stated that 'obviously if you take 10 or 15 minutes off the lesson (for physical activity) you won't be doing some other things' (GSAA711-12). Significantly, Adam and Kate regarded including physical activity as 'easier' to deliver as a *distinct* aspect of lessons, rather than an *integrated* feature of lessons. Following 'activity' being addressed at the outset of the lesson, they suggested that 'you do more or less disregard it (physical activity)' (Adam, GSAA754), and subsequently concentrate on 'real learning' where the focus was developing pupils physical competence in motor skills or game playing.

It was evident that the teachers were uncertain about if and how physical activity could or should be incorporated into physical education. At both schools issues of physical activity and health were perceived as 'separate' and 'distinct' from other learning in physical education, and thus addressed either in 'isolation' within physical education or seen as more appropriately included elsewhere in the school curriculum, (for example, within Personal Social and Health Education, PSHE). In the dialogue below, we see Dave addressing potential links between issues of health and the physical education curriculum, but notably the links focus and arguably rely on a privileging of 'performance aspects' of health and physical activity. In essence, interests in health and physical activity are set within the frame of a 'performance' pedagogy (Penney and Waring, 2000);

Dave: Yes, well, we do it (address issues of health and physical activity) in a specific, where we talk about components of fitness and perhaps a little bit of circuit training and some erm...*

MY: What in a specific block?

Dave: In a specific block, yes, yes.

MY: What do they do in that block?

Dave: I talk to them, err, they do the erm, basically the benefits of exercise, the components of fitness, erm, when you say who's fit, 'oh *so, he's fit*' what do we mean? Erm, and like strength, speed, and flexibility, stamina, aerobic capacity, that sort of thing. We do a bit on specific fitness. So, looking at the game you are doing, the sport you doing, and what components of fitness then would you need to, so if you're a gymnast you do a lot of work on flexibility and strength...and then, erm we do some work on, erm, circuit work and exercises for each of the six components, and look at say, okay, if you were going to do fitness program for a gymnast or you are going to do it for a marathon runner, and you were going to do it for boxer, okay, what various things would you concentrate on?

(FSDH1544-60,161-4)

Similarly, at Greensands teaching associated with 'Health-Related Fitness' (HRF) was explicitly framed by a focus on performance pedagogies and specifically with developing 'fitness'. Kate explained;

> We do a separate block. Which I know some people say it shouldn't be a separate issue it should be incorporated within everything else. But they (the pupils) learn about what cardio-vascular fitness is and what anaerobic fitness is.
>
> (GSKA440-42)

Form and focus: 'freedom' is always framed

The above discussion has highlighted uncertainty and arguable shortcomings in the ways in which discourses of health and physical activity were incorporated within physical education policies and current practice at the case study schools. There is a need to recognise here that as Penney and Evans (1999) have emphasised, teachers' actions, decisions and 'choices' in relation to the form and focus of their curricula need to be viewed in the light of the 'frames' that are set by the official texts of the NCPE, but also by specific school contexts. Critical in those school contexts are the particular views and stance of the head teacher in terms of whether, but also what, aspects and visions of and for physical education are valued (See also Penney and Evans, 1999, Chapter 7). In this respect, physical education is no different to other curriculum subjects, where the focus and nature of provision is inevitably shaped and to some degree always constrained by 'micro-political' issues, but also 'macro' level understandings of what the subject is and should fundamentally 'be' about (Ball, 1990). Thus, physical education teachers' actions and responses to the flexibility and scope for 'slippage' in interpretation of the NCPE need to be viewed in relation to the beliefs and the priorities of the head teachers at both case study schools.

At Forestside, Mr Dawe held very particular views of the subject. In contrast Mr Lara at Greensands was not as certain. However, both had clear opinions regarding physical education's key value in relation to their school as a whole. At both schools these head teachers praised physical education. Both articulated a commitment to providing access to 'opportunities' for curriculum (and extra-curricular) physical education for all pupils. Yet, despite these positive claims regarding the equity of provision, the head teachers had particular interests in mind when referring to physical education. The privileging of discourses associated with traditional, conservative and

restorationist (Evans and Penney, 1995; Penney and Evans, 1999) ideals of physical education were very evident.

Mr Dawe's conceptualisation of the purposes of physical education represented a significant frame for physical education at Forestside. His interest centred upon the provision of competitive 'sporting' activities in and outside of curriculum time. He regarded physical education 'as sport' and referred to the 'character building' effects of participation in competitive sport, and the 'ethos of the thing, with the uniform and, you know, the structure that is there' (FSAD242-44). *In reading Mr Dawe's comments* below, it is worth also reflecting the observations made above about the policies and practices of his physical education department;

> I mean, I think the underlying aim (of physical education) is to teach children, err, to enjoy, active sport. To teach them to work within a set of rules, so that they understand that the dynamics of sport is that you participate and work within a set of rules...As a *teacher, I love teaching them the skills,* you know, and to see them blossom when they get the *skills right.*
>
> (FSAD214-15)

Essentially, for Mr Dawe physical education lessons were a 'springboard' for the more able who wanted to develop their (sport-specific motor) skills further through participation in (traditional) competitive sport. In this way, physical education was regarded as preparing the pupils for the 'real world', 'I have always felt strongly that competition is important because we are a competitive society. I do not subscribe to no win sports days' (FSAD256-58). For Mr Dawe the development of competence in physical skills leading to participation in competitive sport (at school or club level) was the key ingredient for successful physical education provision at Forestside. Achievement in competitive sport within and beyond the school clearly represented, in his view, the pinnacle in terms of pupil attainment in physical education.

At Greensands, Mr Lara also viewed physical education as essentially 'physical sport'. Two concerns drove Mr Lara's perceptions of physical education; OFSTED and examination results. Mr Lara explicitly associated physical education with extra-curricula 'sporting' fixtures over and above other interests within physical education. Kate (physical education teacher) explained, 'He (Mr Lara) likes the fact that there's lots of extra-curricular, umm, you know because obviously that provides him with,

you know, it's good OFSTED' (FSKA18-10). Mr Lara identified physical educations main contribution to the life of the school as one reflecting 'its major contribution to extra-curricular, particularly with OFSTED recently. It (OFSTED) was a very good report and we were praised for our extra-curricular provision' (GSNC233-34). He was concerned with delivering 'a policy (for physical education) that raises the profile' (GSNC318) of physical education within the school, to parents and in the local community. Recognising the achievement (of a minority) of pupils in interschool fixtures through publication of results in student bulletins and the award presentations in assemblies were key strategies employed to enhance the profile of 'the subject'. Mr Lara also regarded the *number of pupils opting to study GCSE physical* education and their results in the subject as 'profile enhancing' features of physical education. Specifically, he stated that 'the value added, and results for GCSE physical education are very good. That was again commented upon by OFSTED' (GSNC333-34). Ironically, it appears that OFSTED has served to legitimate concern with extra-curricular activities over and above curriculum physical education and achievements of the minority rather than the majority.

Interests associated with health and physical activity promotion were marginalized by the head teachers and seen as of limited importance in the provision of physical education at both schools. The absence in both head teachers' comments relating to participation in physical activity for health is not insignificant. For Mr Dawe, like Dave (physical education teacher at Forestside), these interests were regarded as essentially separate and distinct from the main purposes of physical education; the pursuit of excellence in sport. 'Health' education was identified as a legitimate aspect of Personal, Social, and Health Education, rather than being an overt focus in and of physical education. In discussing the position of interests of health and physically activity in the NCPE, Mr Dawe remarked that;

> I think, they (the government) do (value physical education) in terms of health. They see it (physical education) as a 'healthy nation'. I don't, I don't think they push the weight that is important to me, about the achievement, about taking part, about the whole ethos of sport. And I think that is, it's not just going out and wacking somebody with a hockey stick, or being able to tackle somebody harder at rugby, or run around somebody at football, it's learning the whole processes and skills of the game, the tradition of sport...You know the old best that came of sport.
>
> (FSAD414-21)

In discussions at Greensands regarding the need for participation in physical activity by young people and the location and expression of such a need within physical education, Mr Lara openly disclosed where his priorities for physical activity within physical education lay;

> I heard on radio 4 the other day that someone is coming up with 'every youngster should do an hour a day, erm, within you know, taught time. I mean that's just complete pie in the sky, *What are we going to do, cut out maths or something like that*...It went onto problems with obesity and hearts and whatever. You know, health problems for the future. A couple of posters I remember seeing around the place with kids sat on couches watching TV. Somebody was saying schools really ought to be, should be, giving one hour a day of physical education. That means cuts in the curriculum, there's no way though that's going to happen, unless something else gets cut. It's as simple as that.
>
> (GSNC550-60)

What is physical education and what is important in physical education?

Above, I have illustrated above the ways in which (elite and traditional) discourses of sport and performance were privileged over and above other interests in physical education, (and notably those of health and promoting lifelong participation in physical activity), by members of the physical education department and senior management at Forestside and Greensands. But how was physical education perceived and experienced by the pupils? What was their understanding of and interest in the subject? How was existing provision, with its inherent focus on performance and games, influencing their current and/or potential future interests in physical activity for reasons of health enhancement over and above sporting achievement? The views of the pupils provides a key reference point for any attempt to understand their responses to the efforts in this research directed towards engaging pupils more purposefully in 'physically active physical education'. As we see in Chapter 9 these views played a part in their 'rating' and 'regulation' of activity levels during lessons.

Just as discourses associated specifically with physical activity and health were arguably not at the forefront of physical education teachers' texts, they were also largely absent from the pupils' perceptions of the value of physical education. Pupils' understandings of physical education were clearly framed by a 'performance focus' leaving limited scope for discourses of health and physical activity to feature

significantly. Certainly in non-examination contexts, physical education was viewed in rather simplistic and superficial terms. As others have similarly shown, physical education was regarded by the pupils as 'not a proper lesson', it was 'non-academic', 'recreation' and seen as an opportunity to 'have a break' from school and lessons (see Laws and Fisher, 1999). As Andrew at Forestside explained, 'You don't have to write anything...it's (physical education) not like a proper lesson, you're not learning anything really' (FSB2AR228). For the boys at Greensands participating in physical education was 'better than being stuck inside in a class all day with dumb teachers (Daniel, GSB2DR32).

School experiences had shaped the pupils' understandings of what constituted 'physical education' and what represented legitimate knowledge within the subject. Typically, (but perhaps not surprisingly given the form of curriculum organisation established in physical education and mirrored in the NCPE), the subject was regarded solely as comprising a series of distinct sporting activities. The pupils at both schools were able to 'list' their preferred and disliked activities within physical education. For boys this typically consisted of team games, with football and 'playing matches' regarded as the most significant, and often the sole positive aspect of physical education; 'all we want to do is play, play football' (Mike, Greensands, GSMSB1227). For the girls at Forestside, netball and rounders were favourites. In agreement with others (see Jones and Cheetham 2001; Pugsley, Coffey and Delamont, 1996) running and specifically cross-country running were unpleasant experiences for many pupils. Investing time and effort in running during physical education was not popular; 'I don't like it when we have to run for miles and miles', (Matt, Forestside, FSB1225). Pupils had clearly developed negative views towards an activity that is a source of regular physical activity and much enjoyment for some adults.

The GCSE girls at Greensands had some contrasting perceptions regarding physical education. As a chosen examination subject, physical education warranted status and credibility. Interestingly, a characteristic of physical education that attracted the girls to pursue it as at GCSE level was the scope that they felt that the subject afforded for 'staying fit' (Lisa, GSG2LC246). As Lindsey explained, practical lessons enabled them to 'Get to do it (physical education) more in the week, and that means you do

stuff, like practical stuff, you know more in school time and that helps keep you fit' (GSG2LP31-3).

Physical education 'on our terms'; boring and being bothered.

In the context of individual lessons, participation in physical education was influenced by the pupils' particular mood and their motivation or enthusiasm for the subject. Mike at Greensands commented that 'What you feel like, you know what sort of mood you are in. Sometimes you just can't be bothered (to participate in physical education) (GSB1MS61-2). The pupils at both schools commented that their 'mood' and degree of participation in physical education lessons was related to their perceptions of 'how boring it (the lesson) was'. Jason at Greensands explained 'sometimes our PE lessons are so boring, you just don't want to do it (the lesson)...you don't like it and can't be bothered to do it' (GSB1JD516-17). The weather, the lesson content, and the method of delivery by the teacher all variously influenced pupils' enthusiasm for physical education (see Macfadyen, 1999).

What's the weather like?

To promote pupils' participation, physical education also needed to occur in a warm and dry environment. The dislike of participation in physical education at both schools in cold and wet conditions was very apparent and these were contexts in which notably limited engagement in any learning could be expected;

Ryan: I don't like going out there when it's freezing cold.
Simon: Yeah, going out, or when it's raining, and you just don't wanna go out...you're just shivering like mad, and you don't stop shivering.

(Forestside FSRHB1210-13)

Graeme: When it's raining and cold and cold and horrible you just don't enjoy it...At my old school we had to do it even if it was snowing! It's better in the warm and if you can wear loads of kit.

(Greensands GSB2GW39-42)

Teachers and teaching

The pupils at both schools also regarded individual teachers and their pedagogical practices as instrumental in influencing their enjoyment of, and desire to, actively engage with learning in physical education. Furthermore, teacher pedagogies clearly served to shape pupils' perceptions of legitimate and valued knowledge within the subject. Pupils (and particularly non-examination pupils) expressed frustration and dissatisfaction with some aspects of teacher pedagogies. They drew attention to the emphasis placed upon learning sports skills and considered that the teaching approaches associated with this were repetitive, under challenging and lacking relevance;

| | |
|---|---|
| Matt: | I think that Mr Hutchinson doesn't um, like, what he does is for about five weeks straight he does the same thing over and over again when we can get it first time right |
| MY: | So you can get it like in the first week? |
| Matt: | Yeah and then he asks to do it five times in a row, that's why it gets boring. We rather play a game than do practices we've done before again and again. |
| MY: | Practice it over and over again |
| Matt: | Yeah, cause football like, when, when you're doing, we're used to play football for teams and it's *so* easy...cause he used to do about, for about a month and a half he just done like passing the ball and we could do that...* |
| Simon: | passing |
| David: | and different exercises |
| Matt: | ... and we could do that with our eyes closed |
| Simon: | He does about one game every now and again. |

(Forestside, FSB1MV541-47, 61-10)

Similarly, the girls at Forestside commented that 'it's (physical education) not very exciting, Mrs Howe (girls physical education teacher at Forestside) 'doesn't make it exciting' (FSG2GW26). Lesson observations showed the tendency for the girls' netball lessons to be dominated by a very didactic and 'command' style of teaching (Mosston and Ashworth, 1994). The girls were 'well drilled' in a number of specific practices. This was evident from the first teaching instruction seen in lesson observations; 'Pairs, balls, passing, go!'

At Greensands the boys objected strongly to the lesson content and teaching approach they experienced in their football lessons. They felt frustrated by Mr Atkinson's (Adam, their physical education teacher) repeated emphasis on skills and 'training' and his constant 'interruptions' during game play. As Richard explained;

> Sometimes when you play football, you have to like, sometimes you've been playing it for ages and he (Adam) makes you like always, like every lesson you have to go back to the basics, like try and pass the ball and just doing the skills. We've done it all before and would prefer to get more out of it, say in a game.
>
> (GSB1RM433-38)

The boys regarded Adam as exerting excessive control over game play when all they wanted was to be left to 'get on' with their version of the game. When Adam stopped play in 'coached' games the boys commented that, 'nobody takes any notice of him...it's just a waste of time, we just want to play the game' (Jason, GSB1JD41-42).

At both schools the pupils regarded teaching practices as promoting regular competition and comparison amongst pupils (see Lake, 2001; Macfadyen, 1999). Visible displays of physical competence served to promote peer comparison and more worryingly, reinforce negative perceptions of physical education[2]. The girls at Forestside explained how negative perceptions of physical education resulted from exposure to pedagogies focussing upon performance and comparison with other pupils;

| | |
|---|---|
| Sarah: | And they (some pupils) don't want, they don't wanna do that (cross country) cause it makes them tired and they can't be bothered and because they think they're like a bad runner or something |
| Sophie: | That would put them off. |
| MY: | So they, if they think they're not very good at sport...* |
| Sophie: | They won't do it, and they get embarrassed in it, and they just feel negative about themselves, about not being able to do it and everyone seeing. |
| MY: | Why do you think they might feel negative about themselves? |
| Sarah: | Maybe they don't, they're not as good as everyone else and they just feel embarrassed. |
| Sophie: | Yeah, they don't know what reaction they would get from other people in their group. |

(FSG1ST162-20)

[2] As I discuss in the next section, peer comparison within physical education had very important implications for the use of the PCERT scale.

Jason explained how peer comparisons can lead to isolation during physical education and was a source of concern for the boys at Greensands;

> It could be you're not very good at something and you're worried that people might take the mickey out of you, so you just don't want to do it (physical education). When you're not good at something people can be pretty bad, taking the piss and that.
>
> (GSB1JD63-6).

Mike, a fellow pupil at Greensands referred to pupils' physical appearance as making a difference to their perceptions of physical education and being a source of alienation (see Carlson, 1995). This was linked with the negative influence that comparison amongst peers had in the subject. For the girls at both schools this issue was particularly significant. These girls stated that perceptions of their own and others' body shape influenced the extent of their engagement with physical education. In the comments below the linkages that were being made between body shape and the potential to enjoy and succeed in the subject are visible, by virtue at least in part, of the privileging of discourses of elite performance;

| | |
|---|---|
| Sophie: | The size of people might put people off |
| MY: | Yeah, what do you mean? |
| Sophie: | Like, if they have a big belly or something. |
| Sarah: | They don't wanna do it either cause they know they're gonna lose or if it's like a race they know that they're not gonna win when it's competitive. They always finish at the back. |
| Jane: | Against the other people |
| MY: | How does that make them feel? |
| Jane: | Um, um, no, they might think there's no point in me doing it if I'm gonna lose, and like they're not good at anything, because they're never gonna win and can't do it. |

(Forestside, FSG1ST1624-26)

The girls at Greensands displayed similar concerns. Lisa explained that 'sometimes people don't like doing it (physical education), cause they get bullied and stuff in PE, like when they are getting changed' (GSG1LC33).

Regrettably, for many pupils at both schools physical education was 'boring' and lacked fun (See Laws and Fisher, 1999; O'Reilly, Tompkins and Gallant, 2001). 'Having fun' was clearly central to reducing boredom and promoting their engagement in and enjoyment of the subject, rather than being 'forced' to participate

by their teachers. For Jason at Greensands 'it would be good to have a different teacher, one who did some fun stuff with us' (GSB1JD551). The pupils at both schools suggested a variety of ways in which their teachers could manipulate, modify and adapt their physical education lessons to make them more appealing. Providing them with greater activity choices, promoting independence and allocating more responsibility for their own learning, were recurring features in this respect. In particular the pupils expressed that they desired greater ownership of and flexibility to determine particular lesson content, who they worked with in lessons, how much 'effort' they put in, and what was regarded as legitimate participation in lessons and how this was recognised by teachers. In the light of these desires, a positive response to the introduction of the PCERT and focus on the pupils' own physical activity levels in physical education was anticipated.

Physical activity and physical education

Yet, the above hopes were seemingly countered by less positive views of physical activity. For the pupils at Forestside, and particularly the boys at Greensands, incorporating regular participation in physical activity into their lifestyles was not appealing. Specifically, the pupils did not see physical activity as important within physical education or in their lives beyond school. Rather, amidst expressions of lethargy, pupils could 'not be bothered' and activity was considered to be a 'chore'. As Jason at Greensands explained, 'It should be quite easy *if you wanted to*, to keep yourself active, if you wanted to then you could do it. But if you don't want to, then *it's easy not to do it'* (GSBJD337-38). At least in part, these reactions have to be seen as reflecting the narrow and negative understandings of physical activity that have been generated by the pupils' experiences in physical education. Certainly, the pedagogies within physical education and expression of physical activity to which these pupils have been exposed can be regarded as critical in framing their perceptions of a physically active lifestyle.

Do pupils expect to be active in physical education?

The pupils at both schools regarded physical education lessons as opportunities for them to engage in physical activity and there was an expectation that during physical

education they would be required to be 'active'. The GCSE girls at Greensands considered that, as physical education examination students, they were timetabled additional physical education lessons and thus had greater opportunities to be active at school. They saw all the more need for 'core' physical education lessons to be active, as Emily stated;

> We do more (physical activity) than 'normal' people (those pupils opting not to study GCSE physical education) anyway, cause they only do core, but we do both. So perhaps they need it (physical activity) more, it's more important for their lessons as they don't do as much (curriculum physical education).
>
> (GSG2EM537-39)

However, the pupils expressed interesting views regarding what constituted 'activity' in physical education and afforded these experiences marginal status as compared with interests associated with sport.

Certain activities are more active than others

At both Forestside and Greensands the pupils considered certain activities in physical education as 'better' at providing them with physical activity than others, 'in some PE lessons we are much more active than in others' (Laura, Greensands, GSG2LH535). Team games (football and rugby for boys, and netball for girls) were identified as more 'active' than gymnastics or tennis. Within these team games the boys and girls at both schools considered 'playing a match' to represent a particularly active aspect of their physical education lessons. For many pupils this was also the most enjoyable aspect of their games lessons;

> Playing a netball match, is like good (for activity) because you're running and you're having fun at the same time. Having fun is important, cause you're concentrating on other things it's all mixed up, it's like running and having fun.
>
> (Sophia, Forestside, FSG1SL1530-33)

Similarly, Richard at Greensands regarded 'team games are good (at keeping pupils active), cause we run about in them a lot' (GSB1RM450). Although, as findings presented in chapters 4 and 5 have demonstrated, it is only certain elements (skill learning time / game playing time / warming up) of games lessons that are active. Different roles and responsibilities within matches (both football and netball) were

considered by the pupils at both schools to give rise to varied activity levels. Matches were physically active for some pupils and not for others depending upon pupil ability, playing position and their inclusion or exclusion from the game.

The pupils at Forestside and Greensands also commented that in some instances it was not the actual lesson activity itself that promoted the association with lessons being physically active. Rather it was the pupils' own competence in that activity. More specifically, for some pupils certain drills were regarded as more physically active than other drills. For Matt, a pupil high in competence in football at Forestside, a 3versus1 drill performed in a grid meant that, 'you have to pass it round, you have to move more quickly and work harder' (FSWB1MV734), whereas for the less able pupil at Forestside the same drill was regarded as physically active, but for contrasting reasons;

Tom: When Mr H gets you to do those things in a square...and you have to run backwards and forwards around to get the ball...*
Greg: ~~ Yeah that's...*
Tom: ~~ cause like sometimes...
Greg: ~~ that's the piggy in the middle thing
Tom: ~~ you have to run forwards and backwards and forwards and backwards cause those two are passing it to each other and, um, you just don't get a look in.

(FSB2TL36-42)

Similarly, Emily at Forestside said that she found tennis to be active as she was not particular 'good at it' and so 'you have to run a lot chasing the ball' (FSG1EM516). In other instances the location of the activity was the key feature of its perception as an 'active' aspect of physical education. For example, hockey was perceived as 'active' by the girls at Forestside because it took place on one of the school fields farthest away from the changing rooms, and thus 'you have to walk all the way up to the top field' (Sophia, FSG1SL59).

Do pupils want to be active in physical education?

The pupils at both schools identified specific elements of physical education that were considered to be physically demanding and strenuous. There was considerable agreement from the pupils that 'running around' and 'cross-country running' provided

them with highly physically active experiences in physical education. However, these were also precisely the type of activities in physical education that the pupils regarded as boring, humiliating, lacking relevance and being unpleasant. Unfortunately, it was also activity of this type that the pupils perceived **as** 'physical activity'. Being 'physically active' in physical education was equated with being forced to 'run around' and being pushed to a level of physical discomfort. Seemingly, little recognition was afforded to moderate forms of activity by the pupils or their teachers. Lake (2001) and Jones and Cheetham (2001) have similarly reported that young people associate physical activity with discomfort and painful experiences in physical education. The pupils at each school also regarded activities undertaken in lessons that were formally identified as 'HRF' to be 'active physical education'. However, these experiences were also largely seen as unfulfilling, lacking enjoyment and physically demanding. 'The worst is the bleep test, that is...where it pushes you to the limit' (Lee, Forestside, FSB1LF79). The girls at Greensands remarked that sometimes they found their practical lessons 'really hard, really intense' (Laura, GSG2LH315) and that some of the lessons were notably physically strenuous;

> ...the fitness ones, where you have to keep going for so long, it wears you out', and 'like where we done loads of running the other day. When we have to do fitness tests it's really hard. Running all the time
>
> (Laura, GSG2LH323-25).

Conclusion

These understandings, views and experiences of pupils, as those of teachers, were clearly an important backdrop to the attempts in and via this research, to engage both teachers and pupils in a new emphasis on physical activity levels in games settings within physical education. Given the pupils' negative experiences and perceptions of 'active' physical education it is hardly surprising that many of them expressed a general disliking towards participating in physical activity. Clearly, teaching pedagogies are critical to the creation of positive opportunities to be active for all pupils. In the next chapter I consider the perspectives of the physical education teachers and pupils regarding the application and effectiveness of the PCERT in seeking to integrate physical activity with 'other' learning in physical education, and to generate greater understanding of physical activity levels within the context of games teaching.

## Chapter 9

## Physical education, physical activity and effort perception: The views of teachers' and pupils'.

Physical education, physical activity, and effort perception: The views of teachers' and pupils'.

In the discussion that now focuses upon 'rating' and 'self-regulation' of activity levels in physical education, we see the sometimes direct and sometimes more subtle ways in which the issues addressed above shaped teachers' and pupils' reactions to the new explicit privileging of 'different discourses'. The first section pursues physical education teachers'[1] and pupils' views regarding the effort perception scale, their reactions to its application in physical education lessons, and the factors influencing ratings that emerged during the six 'rating' lessons. Subsequently I pursue the factors that impacted upon the pupils' ability to 'self-regulate' their physical activity levels in physical education, and specifically do so in the context of different approaches to teaching games.

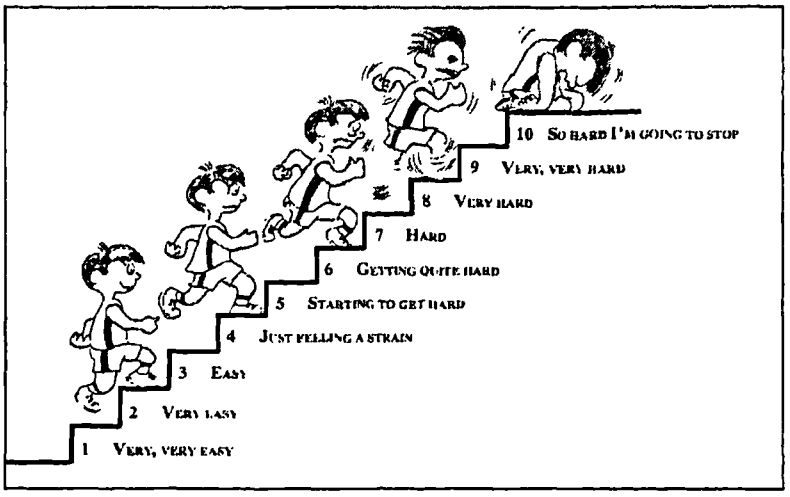
The PCERT: presentation and meaning.

The physical education teachers at both case study schools suggested that the numerical, verbal and pictorial descriptors on the PCERT (see Figure 15 below) clearly represented different levels of physical activity and that the scale added meaning to pupils' interpretations of activity. For Dave at Forestside;

> I think it serves a purpose very well, and the pictures are good for the kids as it gives them a visual thing as well. You can definitely tell that he's (a figure on the PCERT) finding it (the level of physical activity) easy and he's not.
>
> (FSDH1012-13)

At Greensands the teachers remarked that the visual nature of the PCERT made it easy for the pupils to remember, interpret and relate to. The PCERT was regarded as 'a much more child friendly version' (Kate, GSKA63) compared with other effort rating scales (the Borg RPE scale). The pupils agreed that they liked the pictorial aspect of the PCERT and that this dimension aided their understanding of the scale and activity of contrasting intensity.

Figure 15: The Pictorial Children's Effort Rating Table (PCERT)




'Rating' physical activity in physical education: Reflections and reality.

Qualitative data revealed that the dominant discourses in and of physical education at Forestside and Greensands seemingly exerted a powerful effect on the ways in which pupils believed that it was acceptable and appropriate for them to behave in physical education, and more specifically how they should 'rate' their physical activity levels. Providing a rating of physical activity was far from a straightforward process for the pupils. Rather it was one that required careful consideration and that reflected the complex influences of contextual (social, environmental, institutional and pedagogical) factors. Rating physical activity was determined not solely by the physical feelings of exertion that the pupils were experiencing, (i.e., their 'effort sense'[2]), but also by what it was like outside, who was there, the pupils desire to 'belong' and not to 'stand out', and the particular nature of the lesson activities.

[1] Recall that the female physical education teacher at Forestside withdrew three quarters of the way through the research after the conclusion of the first 'regulation' lesson.

[2] 'Effort sense' associated with local and central feelings of physical exertion are typically referred to as the major factors that contribute towards rating effort under laboratory conditions. E.g., whilst exercising individually on a cycle ergometer (Noble and Robertson, 1996).

It's how I feel

The physical education teachers at Greensands and Forestside considered the physical sensations, (for example, breathing and heart rate, degree of muscular ache, changes in body temperature) arising from the pupils' participation in activity as a contributing factor in their PCERT ratings. Adam, the head of physical education at Greensands explained;

> There's just this internal feeling, not specific something you can recall about, it's just that you have this internal message there...It's a sense, I don't know whether it's a kinaesthetic sense, it's a sense of the words described there (on the PCERT). It's bloody hard, you know. It's just that sense you have, a feeling.
>
> (GSAA919-24)

The pupils at both schools confirmed that when asked to provide an effort rating they referred to 'just how you feel' and that 'you just knew it, you just felt it' (Lisa, Greensands, GSG1LC658). The pupils at Forestside illustrated the various physical sensations experienced;

| | |
|---|---|
| David: | You could just like, your breathing was getting like a little harder and you just feel it, you just feel it in your body if it's getting hard, cause if it's so hard you can tell that because...you have to stop, cause your body can't, your body can't take it any more. |
| Tom: | Achy, muscles aching, stitches |
| Andrew: | Lots of sweat and be really hot and worn out |
| James: | Your muscles would be big and bulky and aching, and they'll be hurting. |
| Daniel: | You get a strain and a stitch and your legs wobble...yeah, jelly legs. Your legs you can't feel them, mush, that what I got. |
| Simon: | You feel like your legs are gonna fall off when you're at '9' or '10'. |

(FSB2DW76-20)

It depends on the weather

The pupils and their teachers at both schools stated that although physical sensations were a reference point for 'rating' physical activity, 'other' factors were afforded greater priority. Prominent amongst these other factors were the weather conditions. Dave at Forestside felt that if it was 'nice and warm' and the boys were able to wear

'light tee-shirts and a pair of shorts', this may give rise to different ratings to those likely in very cold conditions where the pupils would be wearing tracksuit bottoms and a sweat shirt. Adam at Greensands suggested the weather dictated the extent to which the boys would apply themselves in the lessons and therefore the activity levels that could be reached.

When the weather conditions were unfavourable (it was raining/cold/windy), some pupils were clearly reluctant to engage in the lesson. This reluctance, coupled with the undesirable conditions, affected activity ratings. Greg at Forestside explained;

> If it's like cold you normally give a lower number...you normally give a lower number because you're more likely fed up if it's raining, so you don't do as much cause you, cause you're standing still.
>
> (Greg, FSB2951-53).

However, this was not necessarily the case for all pupils. For James at Forestside, 'if it's cold then you work harder, to keep you warm I mean...but you keep, but you keep moving to, you keep moving to stay warm' (FSB2JM954). Contrasting reactions such as these were recognised by the teachers, as Adam reported 'Some (pupils) would just cave in and say, well we're just going to stand here and freeze, where others might try and run around to keep warm' (GSAA1026-27). The situation was further confounded by pupils thinking that in different weather conditions their teachers had different expectations of them in terms of activity levels. The pupils at both schools stated that if it was a particularly cold day then their teachers frequently required them do more physical activity than on milder days, in an attempt to 'warm them up' and 'keep them warm'.

Am I interested? Do I care?

The pupils at both schools stated that their 'mood' impacted upon the extent to which they were able and willing to rate physical activity. At Greensands both boys and girls stated that sometimes they 'just didn't care' (Mark, GSB1MS742) about participating in physical education nor the physical activity rating that they provided. Simon and Matt at Forestside also said;

Simon: If you're in a good mood or a bad mood. If you're feeling really happy you'd try a bit more...If you're, if you're really happy, you'll say like, the, the actual number you're feeling or if you're really like unhappy and in a mood you'd go like, you'd just look at it and go '6' or something like that.

Matt: Yeah, sometimes you just *said* a number.

(SCFSB1144-7)

There were occasions when I asked the pupils to provide an activity rating and was met with a blasé ambivalent reaction. One particular occasion from my field notes illustrates this point;

> Lee arrived at the changing rooms for his football lesson in sultry mood, changed reluctantly and with little of his usual zest and vibrancy wandered out onto the school playing field. Although Lee participated in aspects of the lesson he frequently was off-task and sought to actively encourage the disengagement of other pupils. When asked to provide activity ratings at the set points in the lesson, Lee frequently responded with '1' (very, very easy) despite having previously been involving himself with a practical aspect of the lesson. Lee was not willing to provide a rating that was a 'truthful' representation of his physical activity level.
>
> (Fieldnotes, Forestside, 070100)

In addition to these influences of the weather, physical sensations and pupil attitudes, further factors were identified that were also very significant reference points for ratings of physical activity.

Some things *do* matter

The visible and public nature of providing a verbal response about the intensity of their physical activity during physical education was an issue that featured significantly in lesson observations and interviews. Pupils concerns to fulfil teachers' expectations of them, to fit in with their peer group and to fit with dominant acceptable images relating to fitness, physical activity and effort in physical education, and in the lives of teenage boys and girls, meant that ratings were destined to be distorted, and specifically, kept within a perceived 'socially acceptable' range. The pupils assigned ratings that matched the expectations of their friends, other pupils, and their teachers, within physical education lessons.

Teacher expectations

The pupils provided PCERT ratings that enabled them to fulfil their physical education teacher's expectations in relation to activity levels. Emily, a pupil at Greensands explained;

> I think it's who's around you, like if your teacher's there as well. Like when she (Kate, physical education teacher) says, oh you should be working hard, and you come up and say right, what level have you been working at, and you're like okay, I haven't been trying that hard, so it's a '4', but you have to say a '6' anyway.
>
> (GSG2EM1143-46)

A fellow pupil at Greensands, Richard similarly said;

> Sometimes I gave a higher one than I really was, cause I thought like, Mr, I thought well I didn't really try in the lesson, I'm about a '2', so I though, but I'm going to say '4' incase Mr Atkinson asks after the lesson, cause then he'll think that I was trying harder than I was, if he was near.
>
> (GSB1835-37)

The physical education teachers also recognised their presence as influencing the PCERT ratings given by the pupils. At Greensands, Adam suggested that the instructions that he gave within the lessons and his own expectations of the activity levels at particular points in lessons caused the boys to give a rating that would meet these expectations, 'I could see it being an influence where the teacher would say like, oh, this is going to be hard, you know, or I want you to work hard' (Adam, GSAA957). Similarly, fellow teacher, Kate acknowledged that 'her shouting' probably resulted in the girls providing ratings that they thought she wanted to hear. In particular, Kate considered that she frequently underestimated the level of physical activity that the girls were engaged in, and felt that the girls provided higher ratings in an attempt to make her think that they were working harder and at the activity level she desired;

> I'm just thinking about things like, maybe when we'd just done an extended warm-up, and they were kind of thinking, 'well I should be feeling a bit knackered because I've just been running for 5 minutes'. They might sort of think 'oh, umm, you know, and then me shouting at them, maybe they sort of think, 'oh, I should be working at, you know, a higher level' so maybe that...I think I probably nearly always underestimate how hard they work actually. Because when you look at them, they look fine, and they don't look like they're

> flagging. And, I think, oh my god, they're being a bit lazy, so I try and get them to go a bit more.
>
> (GSKA642-58)

Teachers expectations were significant, but more important to the pupils was a concern 'not be different' and to 'fit in' with their peers. The ratings given by other pupils were therefore crucial in determining activity ratings.

What others said

Many pupils at both schools described the ways in which providing 'honest and truthful' ratings that were independent of other pupils' ratings was problematic. Natalie at Forestside explained;

> What about what your friends think? Some people, I haven't done this, but some people might, cause their friends say like, say their friends go, '5', they're really on like '7', you were really on '8', and you might say '5'
>
> (FSG2NR39-41)

Similarly for the boys at Forestside;

> Daniel: It's like, I said number '4' instead of number '3'
> MY: Okay, so why would you have said number '4' instead of number '3'?
> Daniel: To be *in* with everybody else
> Greg: I was gonna say number '3' but I said number '4'
> MY: Okay, why what made you say number '4' instead of number '3'?
> Greg: Cause everybody else said number '4'
>
> (FSB2DW839-44)

Providing a rating that was notably different from the other pupils within the class presented the scope for pupils to be seen to be different from (and thus isolated amongst) their peers. With these issues in mind some pupils reported that responding to the scale was an uncomfortable experience;

> Sometimes I was a bit nervous about saying which number I was, because, err, sometimes I was like really out of breath and like people were like, oh yeah, that's about a '2', and I was like about a 4 at least, you know, I didn't want to stand out'
>
> (Richard, Greensands, GSB1RM76-8)

Not standing out also meant fitting in with what was regarded as acceptable and 'cool' for a boy or a girl in physical education and in modern society. Pupils therefore felt a need to take note of ratings given by those pupils who were held in esteem by the class.

Upholding 'image' in physical education

Within physical education it was important for the pupils to generate and maintain particular images and this was reflected in the ratings provided. Both teachers of boys' physical education attributed the boys' unwillingness to provide high PCERT numbers to their desire to create an image within physical education that reflected a state of physical prowess and physical fitness, where competence to perform skill-based activities effectively with minimal exertion was admired by fellow pupils. The boys at both schools also clearly believed that they had to strive to conform to particular physical expectations held by their friends (and promoted by their teachers). These expectations have arguably arisen from and been framed by the boys' experiences of physical education, and more specifically, their exposure to the privileging of performance discourses. A focus upon physical fitness and motor skill acquisition within physical education seems to have prompted the development of a performance/fitness based hierarchy of comparison with other boys in physical education at Forestside and Greensands. Yet this is not a simple hierarchy (i.e., lower rating the better), but rather, a more subtle and complex one, encompassing 'image' not merely effort.

At Forestside, Dave suggested that 'bravado' and 'arrogance' influenced the extent to which the boys were prepared to provide honest responses in terms of their physical activity levels within football. Being seen by others (the teacher, fellow pupils) to find an activity physically demanding would in turn be interpreted as having a poor level of 'fitness'. Dave explained that if the boys admitted to finding an activity in the football lessons 'hard' (physically) this would be seen as a 'weakness' that was not desirable in terms of establishing and/or maintaining position and status amongst their peers. During one lesson at Forestside whilst the boys were participating in a particularly active drill, Dave remarked, 'they must be knackered, they think that if

they give high numbers they are not fit enough. It's not a 'boys' thing to admit or say is it, although I think they are working quite hard' (Field notes, PL1, 7.1.00).

The boys confirmed that they assigned low PCERT ratings to indicate a superior level of fitness. The boys at Greensands explained;

Matt: We probably lied a bit too
MY: Why?
Jason: To make you look fitter I suppose, if you say a lower number then you are not finding it as hard, so you look fitter.
Andy: To make out you're good
Matt: To make other people think that you've got loads of stamina. By saying a lower number on the scale other people are thinking you're finding it easy, but really I might be finding it a bit harder actually, like a 10! But you look better if you've got loads of stamina.

(GSB1MS715-27)

The boys had a fear of being humiliated or singled out as 'unfit' and 'unable' by other members of the group if they did not 'fit in' with the consensus of 'acceptable ratings' for a particular lesson activity. Andrew at Forestside said;

> Other, other people, if they're like saying, um '3', then you won't want to say '7' and you're actually thinking number '7' then you, you might think they're gonna take the mick out of you (for being unfit) so you say a lower number

(FSB2AR27-29)

The boys at both schools thus effectively 'compressed' the scale, with the upper area of the scale (7 and above) seemingly an being area where they were largely unprepared to offer PCERT ratings, despite the fact that sometimes they were clearly engaged in very vigorous physical activity (see chapter 6).

Amongst the girls at both case study schools there were mixed reasons for them wanting to 'fit in' and varying views about what was acceptable behaviour for a girl in physical education. Like the majority of boys, some girls felt that they did not want to be perceived as 'unfit' by their peers, as Nicola at Forestside explained;

> Because, you don't want to be like, cause if they're (other pupils) feeling number '4', like, everyone said the lower ones, and then you think I'm at '7', then they were working as hard as possible, then they'll (other pupils) say that

you're like unfit or something. Cause you find it harder, but you don't say so...Um, like they've all said like '4' or '5' and um, you're thinking that its like '7', cause you're finding it really hard, erm, then you don't want to say it because all your friends will think that you're really unfit because you are finding it so hard. So you might say a lower number.

(FSG2NM811-19)

Similarly, at Greensands Lindsay reported that;

(You) sort of like worked it (PCERT rating) around what other people were saying. If I thought I was working, like if I thought something was really, really hard, but other people said it was really easy, I would perhaps drop it down a number. Cause you feel a bit stupid, it makes you feel really unfit and that if someone like, I don't know, if they say a really low number, and you think, oh my God, I'm so unfit, and so you say, 'oh '5', instead of '8'.

(GSG2LH117-12)

However, in contrast to the desirability of demonstrating fitness for the boys at both schools, for some of the girls being regarded by their peers as 'fitter' meant that they may 'stand out' and be alienated from other girls in the class. The social and peer pressures associated with 'fitting in' with what everyone else said meant that they did not want to be seen to be finding the activities 'easy'. Thus, assigning a rating of physical activity that was higher than the actual number experienced represented a strategy for not standing out. Melanie at Forestside explained;

You don't want to make it like, cause like, so if you think it's quite easy, but everyone else thinks it hard, then you don't want to make it look like you're showing off about it, so you might say a higher number.

(FSG2MA81-3)

Kate (physical education teacher) regarded this issue as of particular relevance within the GCSE context. She stated that for the 'fitter' girls in the class it was desirable 'not to look too good', so they 'elevated' their PCERT ratings. One girl[3] in particular reminded Kate of the importance of this issue;

She's very conscious of being...she doesn't like being good. It's like, do you remember she did that bleep test and she stopped when Heidi stopped? I think she could have gone on and on and on. She didn't want to stand out you know. Which is a shame, because, she's not an outstanding games player by any means,

[3] This pupil was a runner of National standard.

> so it's the one thing she is so good at, but yet she doesn't want to, show it to everyone else.
>
> (GSKA727-30)

In relation to these issues of image in physical education for boys and girls it also emerged that the pupils took particular note of the ratings given by some pupils. Essentially, ratings from particular 'significant others' mattered. At Greensands, Kate (physical education teacher) suggested there were certain girls in the group whose ratings were listened to more than others;

> You know, when they (other pupils) see people like Rosie, who is extremely fit, if they see her saying a particular number (rating) it might influence them. They felt like if she said that, then they should be. They didn't want to feel like the one who was different.
>
> (GSKA77-10)

At both schools those boys who were perceived by their fellow pupils as 'fit', 'good footballers' and 'cool' felt a need to use their rating as a way of maintaining this image. Specifically, these boys listened to ratings of others and adjusted their own rating to reflect their 'image'. Lee at Forestside said, '(If a pupil perceived as 'less fit' said a number 4) I would think the number '2' cause I don't wanna be a higher number because I'm better (fitter) than them (FSB1LW923-32). Dave (physical education teacher) similarly expressed the significance of this comparative issue commenting that when the 'fit' boys gave a rating they thought; 'If he's saying it's only a 3 then I can't say I'm finding it harder than him and say it's a 4' (FSDH116-8).

In addition to the social concerns surrounding not standing out and upholding a particular image in physical education the teachers and pupils at both schools regarded particular pedagogical issues as influencing the physical activity ratings that were assigned during football or netball.

Pedagogy matters

The pupils identified specific lesson emphases as influencing the ratings that they provided. More specifically, they differentiated between 'drill/practice' activities and 'match/game' activities. They also distinguished between the physical activity

demands that arose as a result of particular roles and responsibilities within these lesson activities.

Types of drill can and do influence activity and rating

For the boys at Greensands some 'training[4]' was perceived as physically demanding whilst other 'training' was relatively 'easy';

Matt: Some of the training's quite hard
Andy: Yeah, like the shuttles, they can get quite hard... But some of them (the drills) are really pretty easy, like just passing the ball.
MY: When passing the ball, what number might you given?
Matt: Well, '1' cause, you don't actually move around do you!

(GSB1MS844-56)

The boys at Forestside agreed that certain drills elicited higher ratings than others and suggested that these were mainly practices that involved large amounts of 'running'. These boys identified activities that gave rise to low PCERT ratings as, 'like in the square when all you do is the passing...the bit where we just stood there and passed to each other' (James, FSB2JM754). Similarly, the girls at Forestside agreed that particular drills gave rise to low ratings, 'just passing the ball and shooting...all the easy things where you don't have to move, apart from your arms and your legs a little bit (Laura, FSG2722-24).

The girls at Greensands raised the issue of ability level in a drill/practice as influencing activity level and therefore activity rating. They felt that if they had previous knowledge and experience of the practice and could perform it with competence, then they would be more active and would therefore give a higher rating. Conversely, where the drill was new or in the process of being learned, it would invariably breakdown, resulting in lower activity levels and PCERT ratings. Emily explained;

> Like if you didn't know how to actually do it, you were working hard, but then you had to keep stopping and starting to like try and actually learn how to do it...Not many people knew what they were doing so they'd run at it and then stop.

[4] 'Training' was used by teachers and pupils to refer to refer to skill/drill practices at Greensands

You'd run a bit and then stop because you wouldn't know where to go, and then you'd run a bit more.

(GSG2EM1419-26)

The pupils at both schools also commented that different roles within drills affected PCERT ratings. David and Andrew at Forestside explained;

David: When we were doing that piggy in the middle thing, and you weren't in the middle, that was easy (lower PCERT rating).

Andrew: But if you were in the middle when we played that piggy in the middle game, you gave higher numbers because you have to run really fast to get the ball.

(FSB2DW738, FSB2AR838)

Games can and do influence activity and rating

The pupils identified various aspects of lessons involving 'game playing' as influencing their PCERT ratings. These included the constraints and restrictions of rules, and playing position. The boys at Greensands identified that during games in football lessons some playing positions 'saw more action' than others. Graeme explained that;

Well it depends where you were, like the position you were playing in. Like if you were a goalie then you weren't working as much as if you were a striker, so you'd give a lower number.

(GSB2GW81-3)

At Forestside the boys were not assigned specific playing positions by the teacher in either the small-sided games (for example, 4v4), or the larger sided games (usually 14v14) that they played. Rather the boys decided their own playing positions. Consequently a select group of the more able players regularly assumed the preferred central or attacking roles, leaving the defending responsibilities to other pupils. As the dialogue below from Forestside shows, for some boys this was a source of frustration in relation to their activity ratings in the lesson;

James: I said '2' cause I was just standing in defence doing nothing cause everybody else was up the other side of the pitch so I didn't have anything to do

David: Some of you work differently some of you do different things so.

James: Depends, it depends where you are

MY: What sort of different things are you doing?
David: Like if you're in mid-field you run up and down and if you're in defence you just standing there
James: You stand there waiting for someone to come
Greg: If you're in goal then you're just, you got to stand there and occasionally dive for the ball
MY: So, you were always giving me low numbers if you happened to be in goal?
Andrew: Yeah. And then if you were like a winger which um, needs a lot of running and a lot of effort in putting the ball in then it's (the PCERT rating) gonna be quite high because you're gonna be running up and down the pitch all the time

(FSB2DW851-56,91-10)

The 'nature' of netball was regarded by Kate (physical education teacher) as influencing the pupils PCERT ratings;

> I mean the thing with netball is that it's really difficult, isn't it, because of the way it is set up. You know, goal-shooter, goal-keeper, you're never really going to hit more than a (certain number in these positions).
>
> (GSKA739-41)

The girls at both schools also identified playing position in netball games as a significant influence on PCERT ratings. They regarded certain playing positions, and the areas of the netball court that each was permitted to play in, as allowing different amounts of freedom and movement about the court. Some positions therefore promoted and enabled higher PCERT ratings than others;

Sarah: Ahh, for being centre, being centre...you're, you have to work harder, you have to work, you have to work at about um, '7' or '8'
MY: Why do you work harder if you're a centre?
Sophie: Because, because you're running backwards and forward. Cause you've got more space to run around in...You've got like, you've got the three um, um, sort of things, parts.
MY: Thirds?
Sophie: Thirds yeah, you're not allowed to go in the circles but you have more area to run around in.
Sarah: Well apart from the circles, the half circle thing

(Forestside, FSG1ST911-22)

The girls similarly identified the positions of goal-keeper and goal-shooter as especially 'inactive'. These positions were remembered for giving rise to low PCERT

ratings. The girls considered that they spent large quantities of lesson time 'just standing around' when they played in these positions;

Susan: When you're playing like a proper netball match, if you're goal shooter, or if you're goal-keeper then you just stand there

Laura: Yeah, you can't run about a lot

(FSG2SG101-20)

Emily: When I was playing goal keeper in the game...you'd say a '1', cause you're standing the whole game doing nothing and the game's down the other end!

(GSG2EM141)

The above discussion has demonstrated that a variety of reference points are used by pupils rating physical activity in the complex contexts of physical education. Some of these reference points could clearly be associated with the discourses in and of physical education privileged at the schools. Discourses of performance and individual fitness were privileged over and above other interests in physical education (see chapter 8) and this was reflected in the ways in way in which the pupils responded to the PCERT. Ultimately, if we are interested in pupils achieving certain levels of physical activity within physical education lessons then we need to further investigate the compatibility of discourses associated with physical activity and those relating to other interests in the subject. These issues came to the fore when the research moved on to the lessons designed with 'self-regulation' of physical activity in mind.

Able to rate: Able to self-regulate? A new planning priority.

Irrespective of the approach to games teaching ('traditional' or TGfU, see below) or the particular games context (football or netball), the fact that attention now needed to focus explicitly on physical activity was immediately 'an issue' for teachers. This was not a focus that the teachers were particularly familiar with and nor was it something that was necessarily easy for them to take on. Dave at Forestside explained 'It's hard trying to teach a lesson, or trying to plan a lesson around the fact that the main consideration is the amount of physical activity. Now that sounds dreadful because we should be encouraging their physical activity' (FSDH1534-36).

When faced with the challenge to include 'active' opportunities for pupils to self-regulate their activity levels to match exercise intensities of PCERT 2, 4, and 6 in the course of lessons, all teachers regarded the planning and to a certain extent, the implementation of the lessons, as presenting some problems. Adam at Greensands explained how;

> When we got to the 'production' (regulation) lessons those were the hardest (to plan and deliver). I was trying to think about doing it (integrating levels of physical activity), because in the previous lessons you were just watching and I was just being natural and doing what I would normally do. But it was more difficult towards the end (the regulation lessons) I think, to have to keep remembering I've got to bring in that 2, 4 and 6.
>
> (GSAA1118-22)

Adam explained that planning the lessons felt rather 'artificial'. For him the central issue was finding ways in which he was able to 'manipulate things a little bit' (GSAA1050). However, there were positive sides to the new focus. Specifically he stated that planning to integrate opportunities for pupils to be actively engaged in self-regulation of physical activity levels 'raised my awareness of what was happening (in physical education). Raising my awareness of linking the skill and the physical effort, in terms of marrying those two things together and the relationships between skill and exercise' (GSAA1050-53). Kate also reflected on this process of integrating previously quite distinct agendas and learning outcomes, saying;

> I have found that from doing the netball you can start to integrate the two (physical activity and motor skill-development/game playing knowledge and understanding), but if you're not used to it, or you've not thought about doing it, then I think it's very difficult.
>
> (GSKA454-58)

Despite the initial uncertainty regarding how the integration of physical activity levels within physical education would work in practice, as the regulation phase progressed and the teachers became more familiar with the processes involved, they grew more receptive to the focus and inclusion of activity in this way.

Responsibility and control in teaching and learning

Teachers at both schools suggested that they learned about how pupils could take further responsibility for their own levels of activity. Adam at Greensands elaborated, saying that he thought the PCERT 'was a great idea as a tool for teaching', and adding;

> I think it's raised the issue that we (physical education teachers) should actually be talking more to students about activity levels, because we don't talk to them enough about it. That will raise their awareness and maybe that will start to have spin-offs (in terms of activity participation). But not only just activity levels, and putting them in relation to skill, but it becomes a whole...a whole package that's just something extra like a warm up or a cool down, but it's something else you talk about in lessons. Like erm, planning, performing and evaluating. You know it becomes a bit of everything.
>
> (GSAA1331-38)

At Forestside Dave recognised that 'it's (the research) trying to take it that further step forward to get them (the pupils) to take responsibility for the amount of physical activity that they're doing' (FSDH1536-38). However, Dave also expressed a clear desire to maintain 'direct' control over the lesson structure and pupils' activity levels. In planning he wanted to identify quite specifically when and where lessons would facilitate particular activity levels. As we have previously seen (see chapter 5 and chapter 8), at both schools concerns to integrate physical activity usually meant lessons featured a 'chunk' of sustained and strenuous activity at the onset of the lesson. The comments captured on video-tape during a football lesson provided further insights into the dilemmas and challenges that Dave was facing in attempting to relinquish some of his control in the lessons;

> Doing it like this (integrating physical activity through pupil self-regulation) is really difficult, erm, not teaching it like this is difficult, but trying to teach them (the pupils) to think about working at different levels of exercise is difficult, whatever way I am teaching, whether it's this method (Traditional) or the understanding method. I would usually try and dictate what level of exercise I want them to exercise at, you could try and tailor it, I think, rather than put the onus on them (the pupils). If I'm teaching it as a 'normal' lesson (i.e., using a traditional approach with minimal focus upon activity levels)...I understand the point of this (the regulation lessons), seeing if they (the pupils) can understand it (physical activity)...but it's not something you would naturally think of doing. It makes it difficult. I think that even after this, I would control how much (physical activity) I wanted them (the pupils) to do.
>
> (Dave, Forestside, football PL4, 240300)

Contrasting approaches: pupils' regulation of physical activity during 'traditional' lessons and TGfU lessons.

The 'self-regulation' lessons pursued the compatibility and the struggles and tensions arising in trying to ensure experiences of particular physical activity levels (i.e., PCERT 2, 4, 6) in 'traditional' and 'TGfU' approaches to games teaching. Ultimately, this phase of research highlighted the need for any pedagogical research to be far more sustained and supportive than was possible in the context of this study. Specifically, the differences between teachers in terms of their prior experience of and familiarity with the understanding approach inevitably affected their confidence in attempting to utilise it with this 'activity focus'. In retrospect, it is possible to recognise that the pedagogical complexities involved in this phase of the research were destined to be problematic for those teachers who did not have a sound background in adopting different approaches to the teaching of games. For example, at Forestside both Dave and Mrs Howe (teachers of physical education) said that they found planning football and netball lessons using a TGfU approach a demanding experience. Mrs Howe was uncomfortable with planning and delivering lessons in a way in which she was not accustomed[5].

(i) Experiences and of issues in a 'traditional' approach: The nature and structure of drills

In the lessons following a traditional approach a key issue that influenced the compatibility of learning skills and regulating activity level centred upon the nature and structure of the drill. The teachers at both schools commented that it was realistic and possible to structure drills that enabled pupils to control their own physical activity levels. Adam stated how 'in the traditional approach you could set up the practice to a level (of activity) and ask them (the pupils) for that level' (GSAA1144-45). His fellow teacher at Greensands, Kate, remarked that the practice needed to be 'set up well enough' to enable the pupils to match the PCERT level required but that this was not always straightforward;

[5] Mrs Howe taught the first 'regulation' lesson but subsequently withdrew from the research, after which two further 'regulation' lessons (1 'traditional, 1 TGFU) were planned and delivered by myself.

> The first time I did it (taught the lessons) it was very difficult actually. I found myself adapting all you know the skills practices. I'd pick a skill practice and I'd think, oh God, how can you change it to make them work? But then once I got used to it, the second skills one I did I found quite a lot easier to do.
>
> (GSKA749-54)

The pupils also considered that the fixed nature and structure of drills during traditional lessons promoted the extent to which they were able to self-regulate activity levels. At Forestside, Zoe emphasised that '(during a drill) you (the teacher) told us where to go, so it was set' (FSG2ZK1010). Similarly, Daniel suggested that the fixed nature of some drills afforded pupils independence, but also enabled them to 'control' their activity levels; '(in drills) it (self-regulating activity) was easier because it (the task) was set...you knew what you had to do, just like passing it around in a square, you were working at your pace and could control it (the physical activity level) more' (GSB2DR15-17). Interrelated issues in relation to the nature and structure of drills, including the simplicity or complexity of the practice, the pupil role, groupings, and the focus and purpose of the drill, also served to enable and/or inhibit the regulation of physical activity.

Difficult drills to perform: difficult to regulate.

The pupils and teachers at both schools felt that prioritising physical activity levels was more straightforward when the drills or practices were kept 'simple', (for example, with uncomplicated movement patterns and minimal technical difficulty). Matt at Forestside explained that during a 'simple' practice involving dribbling a ball in and out of cones across grids, 'you can either sprint, or you can jog, sprint or stroll depending on like what level, say, if it's level '2' you'd just stroll it, level '4' you could jog it and level '6' you can just sprint it' (FSB1MV129-12). Similarly, Natasha at Greensands explained how the simplicity of the drill was important in enabling them to focus attention on regulating physical activity during drills whilst also practising the skill;

> (It's easier to self-regulate in) basic passing and stuff ...cause you are on your own and working at your sort of pace It's (the drill) simple as well, so that you know what you are doing, it's not complicated, you don't have to think about what you are doing, so you can just go ahead and do it straight away. Then you have the time to concentrate on what level (of physical activity) you are

supposed to be working at instead of what you are supposed to be doing (in the drill).

(GSG2NM1720-24)

Where drills extended the pupils technically, with numerous pupils in different and changing roles and/or if the drill featured a competitive element, regulation of physical activity was more problematic.

The teachers felt that if the pupils were unable to perform the skills required in the practice competently, then the drill would frequently breakdown resulting in the scope for regulating activity being compromised. Drills needed to be performed effectively so that they flowed smoothly and allowed the pupils to concentrate both on performing the drill and on the regulation of activity levels. Essentially, the teachers felt that there was little point in prioritising physical activity if issues associated with improving skills were being neglected. Certainly, the teachers afforded priority to matters of learning associated with the development of skill over and above that of being active. They could not see how skill-based lessons could be active if the pupils were incompetent at performing the skills. As Adam at Greensands explained;

Of course, it means you need the skill level to be able to do that (regulate activity)...If they (the pupils) haven't got the skill level and they keep kicking the ball away out of the grid, bang goes the activity level as well. But if they are quite skilled it doesn't take very long before say you get, you can get them to work at a 4 (PCERT level) quite quickly.

(GSAA1132-37)

Kate reinforced her colleague's perspective;

I think skill levels come into it as well. If they (the pupils) keep dropping the ball every time, then you know, you can't do anything about it. You're going come on, come on, you've got to keep working, and the ball gets dropped. You know, they've (the pupils) got to stop and pick it up. There's nothing else you can do.

(GSKA849-53)

The pupils at both Forestside and Greensands also expressed that it was difficult for them to regulate physical activity levels in drills where they, or others that they were working with, were unable to effectively perform the drill. Greg at Forestside explained that, 'if the other players, you don't think they are as good as you, and one of them is meant to pass it and hoofs it up into air the other person has to go and get it,

and you are just left to stand there' (GSB2GW1126-28). Richard at Greensands expressed similar frustration saying;

> Say like he (Adam, physical education teacher), tells you to work at '2', and your are okay at it (the drill), and you pass it (the ball) to the other person and they miss control it or they miss it all together, or they kick it miles away from you, you have got to try and run a bit harder to regain the ball. It's annoying when you're with someone who can't do it, cause it stops what you are trying to do.
>
> (GSB1RM1223-29).

Role in the drill, room for regulation?

The pupils at both schools identified their role in particular drills as inhibiting the extent to which they were able to regulate physical activity levels. Both football and netball drills involved the pupils in different roles at the same or different times. The boys at Forestside explained that when they were engaged in a 3v1 'keep ball' drill in grids that focussed upon maintaining ball control and accurate passing, 'it was almost impossible when you had to work at level '2' and you were in the middle' (Greg, FSB2GM1051-52). Simon, a fellow pupil suggested that this practise demanded different activity levels depending upon the roles of the pupils. If you were on the 'outside' of the grid, 'you could probably do it (regulate activity at PCERT2) sometimes, but not all of the time', whereas, 'if you're in the middle you couldn't work at level '2', cause that would be walking and you can't get the ball' (SC1114-18). Matters associated with pupils' competence at performing particular skills and their roles in the drill or practice are linked to two further important issues that emerged as critical influences during regulation lessons; namely the focus of the drill and the pupil groupings used for the drill.

Prioritising competition in drills.

The pupils at both schools also explained how the 'competitive focus' of some drills complicated their efforts to self-regulate physical activity level. They contended that drills that focussed upon competition demanded high levels of physical activity. Lindsey at Greensands explained;

> When she (Kate, physical education teacher) brought in someone else, like to defend, when you are not competing you can work at whatever level she sets, but

> when we put in like someone else to challenge you in it (the practise, e.g., intercepting a pass), it gets hard to work at that level. You have to work so that you can get the ball, like at a higher level.
>
> (GSG1LP932-38)

In the eyes of the pupils the meaning of the drill was lost when they were asked to prioritise physical activity in the context of an essentially competitive drill. The girls at Greensands said trying to self-regulate physical activity in competitive drills was 'pointless' and 'defeating the purpose of the drill' (Heidi, GSG1HE93-4). The boys at Forestside also identified drills with a competitive focus (for example, 3v1 'keep ball' in grids) as losing authenticity when they were asked to try to regulate physical activity in these contexts. The demands of the drill became removed from the focus that the boys were accustomed with (for example, beating an opponent, succeeding in the drill) and thus the purpose of the practise was lost. Attaining particular levels of physical activity were thus regarded as less significant and afforded less status than 'success' in the drills defined in relation to performance discourses.

Pupil groupings: Working together and regulating together.

The pupils at both case study schools suggested that attempting to regulate physical activity levels in 'traditional' lessons was further confounded by pupil groupings in drills. With groups comprising pupils of varying 'fitness' and 'competence' pupils *identified that difficulties could arise in relation to their own ability to 'self-regulate'* their activity. The girls at Greensands explained that 'which' other pupils were simultaneously participating in the same drill was important. Emily explained;

> You have to run faster and work harder if people are better than you at a certain thing....So if you're doing that, (a particular drill) and them two (two 'fit' girls from the group) are running, your level 6 is going to be different to their because they have got a different ability to you. So like you're going to be working at what you think is like, you're nearly to dying level and theirs is like probably hardly even feeling a strain.
>
> (GSG2EM1620-24)

The pupils suggested that during drills where mixed 'fitness' pupil groupings were used, they did not work at their 'own' PCERT level. Rather they were 'drawn' into participating at a different intensity. Nicola and Lindsey said;

> If you're working with someone who is able to work at their particular level, and you are trying to keep up with them, like if I was working with Kerry and Rach

again, they're running like a jog, and for me, I'm in a sprint, so it might be a level '4' for them, but a level '8' for me.

(Lindsey, GSG2LH169-12)

When I worked with Becky and Helen (two of the 'fitter' GCSE girls) the other week, you know when we was doing that like passing and running from cone to cone and one started off a bit behind the other and you had to sprint. I had to work really hard because like Helen's quite fast and Becky's quite fast so to keep up and try to intercept the pass I had to work a lot harder than she did, like to get there. So I wasn't working at my level '4', I was probably working at her level.

(Nicola, GSG1NK847-51).

(ii) Experiences of and issues in 'TGfU' games lessons: The nature and pattern of games.

The teachers and pupils at both case study schools reported that they found it more difficult to integrate physical activity in TGfU lessons than in lessons considered as 'traditional'. The focus upon 'playing the game' was considered a crucial influence on the extent to which pupils were able to regulate their physical activity levels. The nature of games and more specifically, the game pattern, (its intermittent nature and associated teacher pedagogies), the competitive character and authenticity of game situations, and the specific roles and responsibilities of pupils within them, all added to the complexity (and arguable difficulty) associated with prioritising physical activity whilst playing games.

Game playing inherently involved complex interweaving of the actions of different players on the same and opposing teams. Invariably the actions of the players coupled with teams strategies and tactics made game situations very complex and left the physical activity level invariably outside the control of individual pupils. The teachers at both schools regarded the nature of game playing and in particular the extent to which a player (pupil) has limited (self) control over their movement patterns as inhibiting the notion of 'self-regulation' of physical activity during game play. Adam at Greensands explained how he regarded the understanding approach to be much more 'free-flowing' than the traditional approach (GSAA1147) and that despite his efforts to encourage particular activity levels, and the pupils' attempts at regulating these, activity levels were largely determined by the pattern of game itself. The pupils also reported that they were less able to control the pace and intensity of their physical

activity levels during games due to the pattern of the game. For Graham at Greensands, 'Well you did try and think about it and do it (regulate physical activity) but it wasn't that easy cause you have so many other things to think about and everyone does their own thing that changes how you play the game' (GSB21032-34).

Intermittent game pattern, intermittently active.

The pupils at both schools suggested that the game pattern experienced in both football and netball was typically intermittent and that due to this 'stop-start' nature, regulating activity levels in the game was difficult. Initiating intensive bursts, rapid changes of pace, and periods of inactivity when 'off the ball' and for breaks in play proved problematic for pupils regulating physical activity levels in games contexts. Specifically, when play broke down as a result of the ball going out of play the pupils and teachers expressed that it was a challenge to continue to strive to reach, or to *maintain, a particular PCERT level, 'If the ball is in play then you are like running around, but if it goes out for a throw or a corner or something like that then you stop running around' (Daniel, Greensands, GSB21058-60).* At Forestside, Dave (physical education teacher) also identified the intermittent nature of game play and inevitable *breaks in play as disrupting the potential for pupils to make sustained attempts to* regulate their physical activity level;

> I think that they were able to differentiate between the 2, 4 and 6. Whether they could sustain that for any great amount of time? But then working at level '6' for them to sustain for any great amount of time continuously is going to be quite difficult. When like the ball goes out for a throw in...yes one of them did actually say to me, 'oh shall I jog on the spot, or whatever when the ball has gone off for a throw in?' I think that was something that would make them unable to achieve it (self-regulate physical activity), or restricted them from doing it.
>
> (FSDH1242-25)

At Greensands, Kate also acknowledged this intermittent nature of game playing in netball. She employed simple strategies in TGfU lessons as a means to create further opportunities for pupils to maximise the time spent playing in ways that would also maximise the time available to self-regulate physical activity. For example, when the girls were asked to try and attain and/or retain physical activity at a level of PCERT6, games needed to be played at pace with minimal disruption. To encourage faster play half court games with two small-sided teams shooting towards the same net were

played, 'Playing half court makes it a lot different...it's much more intense for them than full court because the ball is always going to be at their end (GSKA839-40). Also, the use of multiple balls enabled quick restarts after play broke down. For example, rather than wait for the ball to be retrieved after it went out of play replacement balls were quickly available to restart play.

Directing the pattern of play, dictating the level of activity

Lesson observations and discussions with pupils revealed ways in which particular pedagogies during game playing further influenced intermittent game patterns. During the TGfU lessons Adam (physical education teacher at Greensands) frequently intervened during game playing scenarios and questioned the boys about particular strategies, player positioning and tactical awareness. As this exert from my fieldnotes shows, this frequently resulted in game stoppages;

> (during a 7v7 game played) Once again, we see how Adam does a lot of talking in the game. Always asks the boys where the ball should be going and what they should be doing. Adam offers a running commentary on the game; 'come on think about working here, look up, spread out, Matt behind you, play it down', and what he feels the game *should* look like. Physical education teacher as 'broadcaster', sounds like watching a football match on a Sunday morning. It's almost as *if* Adam is preoccupied with the game and positioning the boys, stopping and starting play to do this. Sometimes he emphasises the activity level (in this case PCERT '6') rather than what should be happening in terms of the context of play. Does doing this give the boys more flexibility in terms of their own choice for the pattern play, rather than having Adam dictate it?
>
> (Greensands boys football PL2 130300)

The boys at Greensands found Adam's regular interventions frustrating, both in terms of restricting their opportunities to 'get on with playing' and importantly to win games, 'sometimes just as you are about to do your fabulous run down the wing, he stops it and everyone just then crowds around you' (Graham, GSB2128-10). They also saw it as constraining the scope for them to try to achieve a particular physical activity level in the game situation;

Andy: He stops it so much
Jason: Yeah, it would be better if he didn't stop it.
Matt: It would be better if he didn't stop it, cause you don't actually work up to out of breath. It's sort of like, you just about hit that out of breath mark and he blows the whistle, cause we did something wrong,

like you were in the wrong place and the game gets stopped and we'd rather play on.

Rich: A lot of the time he says' okay I want you to work at '4' and err, like you are about a '3' and you're still working, and err, sometimes if you don't pass it to the right person he just blows up and like gives you a five minute lecture which means you right back to a '1'.

(GSB1AN930-38)

The competitive nature of games

Although aspects of co-operation and desires to work with others towards a common goal were evident during TGfU 'game playing' lessons, frequently competition was the central characteristic of these lessons. For the teachers in their planning, and the pupils in their participation, 'winning' the game-form was the priority. The pupils did not see physical activity within the contexts of games as ultimately 'what games were about'. Thus, discourses of physical activity were perceived as in some respects, incompatible with those of performance. Where the meaningfulness of experiences of games for pupils was strongly framed by the outcome of their participation in terms of winning the game, a focus on physical activity was seen as inhibiting their likely success and detracting from the authenticity of the experience. Attempting to regulate physical activity level within the context of a game was clearly a secondary concern to that of winning the game. As Lindsey at Greensands explained;

> I don't see, like in game, how like you can ask us to work at a level (of physical activity), because like you just aim to win the game, don't you? And so you don't just work at, say if you asked us to work at a '4', you don't work at like that, to get the ball, like you'll work however hard you feel that you have to. You can't just stop yourself to work at a level, cause otherwise you'll just keep losing the ball and everything, and that's not the aim of the game.
>
> (GSG1LP822-28)

The boys at Forestside also commented;

> It was quite hard to keep to what he (Dave, physical education teacher) said in terms of physical activity level) because if the ball's there in front of you and you need to in more effort, effort to get there, then you really wanna like go up there and score, so you, you put more effort in, but then you're not keeping to what Mr Hutchinson (Dave) had said.
>
> (Greg, FSB2GM1117-20)

Playing position determines activity regulation.

The girls at both schools identified particular playing positions and their associated playing area restrictions in netball as an important factor within games that inhibited the self-regulation of physical activity. Lisa at Greensands explained how during netball games she found it difficult to regulate her physical activity level at PCERT2;

> If you're like a centre in netball, then it's hard to do that because you have to do quite a lot in the actual game...it might be easier if you're like the keeper and shooter cause you've only got like a certain bit where you're allowed
>
> (GSG1LC834-38)

At Forestside the girls had similar concerns. They suggested that the constraints imposed upon them in certain positions restricted their potential to be active and to self-regulate activity in games. Regulating physical activity at PCERT6 was particularly difficult when playing goal-keeper or goal-shooter, 'when I'm a goal-keeper I sit down...because you don't have much to do sometimes' (Kay, FSG1KA333). However, the girls also recognised that that this was not always the case. Scope to regulate physical activity depended on the pattern of game play. When the girls were playing the 'full version' of netball it was common for play to switch from one end of the court to the other. Thus players in particular positions could only be involved in play, and regulate their physical activity level when the ball was at 'their' end (see below).

The boys at both schools also acknowledged that playing position in football was an influential factor determining their ability to regulate their levels of physical activity. Central positions were considered 'easier' than positions in either attack or defence. Alex at Greensands explained how; 'in midfield you run about a lot more than if you're in goal or whatever, and it would be easier (regulating physical activity) because you've got more to do moving backwards and forwards and that' (GSB1AN32-34). Adam (physical education teacher) similarly regarded the position and role in game play and in particular the way in which he devised and structured games as shaping pupils control of physical activity;

> If I put you as a winger and you've got to go up and down the outside, then those two people work a little bit harder than the centre forward who can't go back in his own half because I've restricted him into a certain area.
>
> (GSAA121-4)

Opposition and opportunity for regulation.

For the girls at both schools the respective competence of the teams was a key factor determining the extent of involvement of particular positions (goal-keepers and goal-shooters). They suggested that where a player was the goal-shooter and the opposition were 'good', 'the balls always down the other end' (Zoe, Greensands GSG21029). This resulted in limited opportunity for them to be involved in playing the game and in turn to regulate physical activity levels. This was similarly the case when the girls were playing goal-keeper and their own team was perceived as 'good'. Play was often at the other end of the court, leaving the goal-keeper unable to participate.

The boys also acknowledged that in parallel with playing position, the composition and competence of the teams in football games were critical factors dictating the self-regulation of physical activity;

> But it (regulating physical activity levels in the game) also depends what the other team are doing. Cause if you are a defender and the other team is rubbish, then the strikers will always have the ball at the other end, so you just do exactly the same as the goalie does. If you don't change position you just get stuck there while the others play.
>
> (Greg, GSB2GB948-52)

The importance of playing modified games, such as the half-court netball games observed at Greensands, and regularly changing pupils' playing positions to enhance opportunities for physical activity was thus brought to the fore in these observations.

Do I *want* to be active in lessons?

The issues discussed above in relation to regulating physical activity in different games contexts need also to be seen in relation to pupils' general attitudes towards physical education and physical activity. Irrespective of the approach to games teaching, this was always a key issue. In important respects therefore this phase of the research engaged with a critical reality of teaching and learning – that it is never a one-way relationship, but instead, always destined to be negotiated and openly

contested. As I have described previously (see chapter 8), participating in physical activity was not regarded as a priority in the lives of the pupils at Forestside or Greensands generally. Nor, was it their usual priority within physical education lessons. This was of particular significance when the pupils were asked to regulate physical activity the higher intensity (PCERT6, 'getting quite hard'). Greg at Greensands commented that 'the more you play, the harder (physically) it gets, and the more tired you get the less you want to play. You get fed up with and so don't try (to regulate physical activity level) (GSB2GW114-6).

The physical education teachers at both schools suggested that prioritising discourses of physical activity did not engage those pupils who 'couldn't be bothered' with physical education generally, and especially those who 'disliked' physical activity;

> A lot of them (pupils) don't want to do it (be physically active), they don't want to run around. They *want* to stand still. You ask them to work at a level '6' and they'll be like, 'whatever'. As much as they'll get to (in terms of physical activity level), is as much as *they want* to get to.
>
> (Kate, GSKA928-29)

In addition to the pupils' enthusiasm for physical activity in physical education, it also emerged that the motivation of the teacher to involve pupils in particular activity levels, and their expectations of this activity level, impacted upon the extent to which the pupils were able to regulate physical activity.

Teachers' physical activity expectations

Irrespective of teaching approach employed the teachers at both schools felt it was necessary to continually 'prompt' the pupils, both visually (through showing the pupils the PCERT scale) and verbally to continue to make efforts to self-regulate activity level. My field notes from Greensands show this in practice;

> Although the boys have been asked to work at '4', Adams tries to prompt the boys; 'you're not working quite hard enough yet', 'I can't see anyone working at '4'...do some running'. These prompts are usually related to Adam's interpretation of a '4' or what he perceives a '4' for the boys to be'.
>
> (Greensands boys PL4, 100400)

This had important implications for the activity levels that the pupils were willing and/or able to attain/retain in the lesson. In important respects the physical education teachers were imposing upon the pupils their perceptions of the desired activity level rather than letting the pupils decide this level themselves. This frequently resulted in the pupils being 'pushed' to a different level of activity. At Greensands Nikki explained how this was the case in their 'regulation' lessons;

> If Miss Apple (Kate, physical education teacher), if you were actually working at you level, she'd be like, 'come on' pushing us to work harder, so it wasn't our proper level. I'm not saying that it's her fault I mean she probably didn't know she was doing it, but she was pushing us further than what we were meant to be at.
>
> (GSG1NK97-10)

Rating and regulating physical activity: a (re) orientation for learning

The above commentary has raised some important issues for teaching and learning priorities in physical education and how physical activity can potentially be addressed alongside and integrated with other aims of the NCPE. The commentaries on the possibilities and difficulties provided by the teachers and pupils at both schools regarding both rating and regulating physical activity in games lessons certainly demonstrated their growing awareness and understanding of physical activity in physical education. Some important implications for teaching and learning about physical activity in physical education were highlighted. Specifically, planning to integrate physical activity is not just a matter of getting pupils to 'run around'; it is about more than that. Integrating and prioritising physical activity with 'other learning' is very complex and not necessarily easy for either teachers or pupils. Key factors restricting the scope for integration of physical activity in games contexts were the strong established perceptions of teachers and pupils at both case study schools regarding what the priorities for teaching and learning in physical education generally and specifically in games should be. Prioritising discourses of physical activity demanded a refocusing of educational learning priorities away from a traditional emphasis on 'winning or losing' towards alternative, and equally worthwhile educational outcomes (such as participation, knowledge of activity, working with, and alongside others towards a common goal, pupil responsibility and pupil ownership of learning). As I discuss in greater detail in the final chapter, seemingly teachers (and

pupils) were unwilling and/or unable to (re)orientate their focus and priorities for teaching and learning in this way.

# Chapter 10

# Developing a different message: strengthening discourses of physical activity in physical education

Developing a different message: strengthening discourses of physical activity in physical education

> Very good practice was exemplified in a year 9 running lesson. Here the teacher's encouraging, supportive and motivating manner, the setting of realistic and achievable individual targets, and the variety in the approaches adopted produced a marked change in the attitudes of a low attaining group (which included students with special educational needs) and enabled them to enjoy the satisfaction of real achievement in a demanding physical activity
>
> OFSTED (Greensands, 1999, p. 56)

The above exert demonstrates how refocusing and repositioning priorities for teaching and learning through employing pedagogical practices (in this case using the PCERT) that enable pupils to take responsibility for and ownership of learning has the potential to make a positive difference to pupils' experiences of physical activity in physical education. Arguably, it is evidence that there is potential to achieve some compatibility between what have been portrayed as competing or notably different discourses in the subject. The research presented in this thesis has explored the nature of the contribution that physical education currently makes, potentially can make, and should endeavour to make towards young people's current and future physical activity levels. It has sought to advance understandings of the ways in which and the extent to which agendas relating to physical activity and health and to sport performance can be effectively combined in teaching. At the same time it has highlighted that many factors need to be addressed in pursuing such integration of interests and that neither gaining acceptance of the aims, nor achieving the desired outcomes will be easy. In seeking to explain the factors that influence the compatibility of different discourses in and of physical education, this chapter returns to issues of curriculum contestation and change, addresses notions of 'slippage' in the implementation of policies, and revisits the concepts of voice and message, and classification and framing (Bernstein, 1990, 1996) that were introduced in Chapter 1. This chapter also reflects upon the research process and discusses the agendas for future research that emerged from this study.

What did the research reveal?

Research presented in this thesis (Chapters 4, 5 and 6) has shown the definitive contribution made by physical education towards the attainment of recommended

physical activity levels for young people. However, the findings also pointed to the limitations of particular practices that gave rise to the attainment of higher levels of physical activity. Specifically, the research demonstrated that in practice the promotion and integration of appropriate and desirable physical activity was not a priority for teachers planning and provision, nor was it regarded as priority for pupils' participation in physical education lessons. Jones and Cheetham (2001) also recently identified pupils' reluctance to engage in physical activity during physical education lessons, and found that pupils' perceptions of physical activity in physical education were typically associated with unfavourable experiences of arduous 'running'. In my research the inclusion of opportunities for physical activity in physical education remained embedded in some undesirable practices and was frequently ad-hoc, piecemeal and included as an afterthought. Invariably provision of physical activity in physical education was overlooked by the centrality of established sport and performance dominant discourses in and of the subject. Yet, crucially this does not have to be the case. This research pursued the scope for making physical activity a priority for teaching and learning within the context of a particular (and well established) curriculum framework for physical education and the NCPE specifically. It openly prioritised discourses of physical activity and located these interests alongside, and certainly not as subordinate to, other more established discourses of physical education and of games teaching in particular. Chapters 6 and 9 demonstrated the ways in which a focus on effort perception (and specifically the use of the PCERT) provided a basis for advancing teachers' awareness of including opportunities for participation in appropriate physical activity, and pupils' and understandings of their feelings of physical activity and of how to recognise and self-regulate activity levels in physical education. Yet, the centrality of physical activity and the combining of 'different interests' was not without problems and was not wholly accepted by either teachers or pupils. The research revealed the limits to the compatibility of discourses of *physical activity* and of *performance* in sport (and specifically games), but equally highlighted the mix of both constraint and possibility that existed in these developments. In the discussion below I pursue a number of key issues relating to the complex mix of progress and resistance that emerged in the research.

What factors shaped slippage?

This research provides significant support for the view that only certain 'slippage' (see chapter 1) is possible within the context of interpretation and implementation of policies in education. Although 'more creative' readings of current policy were promoted in and by the research, the scope for teachers to pursue these in practice was constrained by numerous factors. The multiple demands of physical education that arise from internal and external sources and that are reflected to some degree in the NCPE inevitably required teachers to make choices about form, content and focus of the curriculum and lessons within it. The choices made by teachers reflected the established and dominant focus of the NCPE. Invariably they made the requirements to integrate physical activity in their lessons and teaching congruent with existing preferences and understandings about the form and focus of the curriculum in general, and games in particular. Rather than the polarisation of discourses of 'sport' and 'health', these different discourses were to a certain extent, integrated in the games lessons. However, interests of physical activity remained overshadowed by the teachers' and pupils' existing perceptions regarding what they considered as valued and legitimate knowledge and learning in physical education and in games specifically. Despite the explicit focus established for teaching and learning to prioritise (particular) *activity discourses*, these remained subordinate to other discourses in physical education, and particularly those of competitive sport. Essentially, 'games' were still 'games' with a performance-based focus and performance priorities for the learning experiences privileged. Although lessons may have used physical activity as key reference point for teaching and learning, teachers' thinking (and pupils' experiences) about what physical education is fundamentally 'about' remained focussed upon what they considered to be the most important learning outcomes in games; namely skills, competencies and performance. Teachers and their practices largely reinforced differences between being physically active and 'other learning' in physical education and in games lessons specifically. As I discuss below, in part this can be related to the particular discourses of health that they deemed legitimate in a games context. Essentially, I saw 'slippage to the familiar' occurring, whereby the teachers' recontextualised the new agendas presented to them so as to be compatible with the existing (and powerful) frames of the NCPE, their existing beliefs and practices, historical experiences and knowledge, and the specific

contexts within which the teachers worked. All of these factors variously shaped or framed the interpretations and implementation of the new agendas. The effect of the combined pressures and influences was subtle and complex, but critically the collective effect was to visibly limit the status ultimately given to discourses of physical activity, and therefore the extent to which practice could be regarded as reflecting a 'new message' (Bernstein, 1990, 1996, see chapter 2).

'You've been framed': the combined power of policy and established practice

In 1999 Penney and Evans posed the question of whether the principle and strength of classification inherent in the NCPE has become so constraining and demanding that teachers now have to deliver 'what they are told'. In the research reported in this thesis, teachers' responses to the focus upon discourses of physical activity (in particular during certain games contexts, see below) were framed by their strongly established readings of the NCPE and their views regarding what fundamentally physical education is and should be 'about'. It was all too evident that policies cannot be divorced from either historical or individual contexts. Nevertheless, the (re)location of discourses of health and physical activity as an important focus of teaching and learning (rather than an often excluded or absent interest) in games, arguably represented a small but crucial step towards 'reducing the insulation' (Bernstein, 1990, 1996) between dominant categories of knowledge in physical education (i.e., areas of activity and specific sports), and so weakening the strength of classification. The privileging of physical activity in teaching and learning thereby explored the possibility of establishing an alternative 'voice' (and challenging the established voice) of physical education. However, the research also showed resistance (from teachers and pupils) to such displacement. If a new voice is to be established and evident in physical education, teachers must be prepared to refocus their priorities for teaching and learning and be supported in this process. With support and guidance the teachers and pupils involved in this research were prepared to take steps towards challenging the dominant voice, but equally showed that they were unwilling and unable to do so in sustained and meaningful ways. In this context, the potential strides forward were invariably reduced to tiny steps as teachers and pupils remained locked into the strongly classified activity based and performance driven framework of the NCPE. Essentially, the research confirmed the *limited* freedom that exists for teachers to work creatively within the frames of the NCPE, and to locate different discourses at

the forefront of their practices (Penney and Evans, 1997, 1999). The promotion of discourses of physical activity via an emphasis upon levels of physical activity participation and an understanding of these by teachers and pupils to some extent enabled physical activity to be positioned as compatible with (rather than contradictory to) other more established discourses in physical education – but it was very clearly a matter of to 'some' extent.

What discourses of health and physical activity are legitimate in physical education and in what position relative to others?

In both the 'rating' and 'regulating' lessons I saw ways in which the privileging of discourses of performance inhibited the expression of particular discourses of physical activity. The use of the PCERT was perceived by the teachers in a particular way and for a particular purpose. *Despite the recurring emphasis throughout the research of* more holistic discourses of health and physical activity (specifically those that have come to be associated with HRE, see chapter 2), only *certain* discourses of health and physical activity were considered legitimate and were expressed by both teachers and pupils within games contexts. Discourses embedded within HRF (see chapter 2) remained the apparently 'hidden' priority in teachers' interpretations and implementation of the PCERT. Holistic discourses of health associated with psychological, social and emotional benefits of participation in physical activity were acknowledged in principle, yet essentially these discourses did not shape/define practice. Rather, they remained subordinate to discourses associated with physical fitness that have repeatedly been accorded a privileged position in both physical education policy and teachers' practice (see chapter 2). Rather than teachers actively seeking to position 'alternative' discourses of health and physical activity alongside and amidst established discourses of sport and performance, the teachers modified and adapted discourses associated with pupil autonomy, choice, responsibility, and the development of knowledge, skills and understanding of forms of moderate activity, to fit with their pre-existing and established view of physical activity 'as fitness' and 'for performance' in games. Thus I saw physical activity being incorporated and privileged in discernible 'sustained and vigorous chunks' (either in individual lessons as a warm up or in units designated HRF), rather than being integrated into 'redefined' learning opportunities and experiences throughout lessons. The scope for more holistic

discourses of health and lifelong physical activity to be pursued and located differently was also constrained by teachers' focus on the development of pupils' 'individual fitness' rather than participation in health-enhancing physical activity. This privileging reflected the teachers' conceptualisations of what 'active' physical education is, and is about.

The research thus illustrated the tensions that may well arise and be inherent in teachers readings and implementations of new curriculum requirements or initiatives. In important respects the reactions (and tensions) can be seen to arise from historical 'functional' discourses of fitness and sports performance that have come to be firmly embedded within physical education practice and ultimately also within the NCPE (see chapter 2). Within the context of games teaching, this focus essentially remained linked to the teachers' perceptions of what fundamentally games are 'about' and what knowledge is valued within teaching and learning. The teachers' priority was performance and their interest in 'fitness' was with improved performance in mind. Thus, where discourses of physical activity were acknowledged in teaching and learning, they were highly specific. Other discourses of physical activity relating, for example, to lifelong participation and overall health and well-being, seemingly struggled for legitimacy. Teachers' and pupils' attention invariably (and perhaps understandably) focused upon the result of the game rather than other learning outcomes. The links between playing games and the participation in physical activity (particularly of moderate intensity) for enjoyment and health, were seemingly difficult for both teachers (and pupils) to embrace in anything more than a 'nominal' way.

Ultimately my research thus called into question whether we can achieve compatibility of discourses associated with holistic dimensions of physical activity and health and those of (elite) 'sport' in physical education (and particularly games), and highlighted the extent of the pedagogical challenges attempts to do so may entail. However, in acknowledging that only certain discourses of physical activity were privileged and expressed in practice whilst others remained subordinated, it is important not to lose sight of the fact that the research did promote critical reflection amongst teachers regarding the expression of different discourses of physical activity in physical education. The teachers' limited recognition of the scope for alternative discourses of health and physical activity to be afforded greater status in games

contexts has to be acknowledged as reflecting multiple factors. There were many constraints on thinking and practice, however, the potential for different and arguably broader visions for 'active' physical education to be realised in policy and practice was not completely subordinated or rejected.

Change in philosophies, change in curricula?

In the light of the above observations, it could be claimed that I witnessed only 'superficial' rather than 'deep' (Sparkes, 1991) change in teachers' philosophies, values and beliefs regarding the fundamental purposes of physical education, what the subject is, and should be about. It is important to recognise, however, that *some change can be seen as better than no change.* After participation in this research, priorities in policy at Forestside were modified to express more obviously discourses of health and physical activity that were not visible or dominant at the outset of the research (see Chapter 8);

> The physical education department at Forestside Middle School aims to provide young people with a wide range of challenging, enjoyable and health promoting activities with the main emphasis being on participation. Physical education should contribute to the overall education of young people by helping them to lead full and valuable lives through engaging in purposeful activity. It should:
>
> - Develop physical competence and help promote physical development
> - Teach pupils through experience to know about the values and benefits of participation in physical activity whilst at school and throughout life.
> - Develop an appreciation of skilful and creative performances across all the areas of activity.
>
> (Forestside Physical Education Policy, 2000)

In this regard, this research supports the arguments made by Penney and Evans, (1998) that despite teachers facing increasing pressure to respond in certain ways to government policy and adopt certain discourses, 'teachers are not automatons or mere puppets in the policy process' but remain influential in the interpretation, implementation and expression of policies in schools (p.96). They, and their practices, remain central in defining physical education in particular ways;

> ...actions at the individual, inter-personal and institutional level can also provide the critical starting point for challenging this dominance, for developing

> and promoting alternative discourses that may then become more visible or prominent.
>
> (Harris and Penney, 1997, p. 50)

As others have shown, large scale 'top-down' curriculum initiatives (for example, the NCPE) have invariably resulted in little or no impact on teacher philosophies, priorities, instruction, and management styles (Curtner-Smith et al, 1995b, 1996a, 1996b, 2001; Laws and Aldridge, 1995) and teachers have adapted, modified and recreated the NCPE to fit with existing practices (Penney and Evans, 1999). This research has revealed the complex and contested potential for, *but not impossibility of* challenges associated with the efforts to raise the profile of 'other' discourses in physical education, and specifically in the implementation of the NCPE. This research identified the scope for school-based research to impact upon the teachers' and pupils' priorities for teaching and learning in physical education, and in doing so raised important issues for future practice in physical education teaching and research, initial teacher training and continued professional development. How can schools, teachers, and pupils be encouraged to adopt 'deep' rather than 'superficial' change in their policy and pedagogies relating to physical activity in physical education? What does the future hold in terms of further pursuing the scope for creative readings and interpretations of existing policy so as to prioritise more holistic dimensions of health and physical activity? Is there a need and/or scope to challenge the existing dominant curricula structure and engage with a new 'form and focus' for curricula? (Penney, 1999a, 1999c; Penney and Chandler, 2000) Would a new curriculum framework overcome problems in relation to compatibility of different discourses in and of physical education?

Physical activity and physical education: Moving forward within existing NCPE frameworks.

Teaching and Teachers

Whatever interests physical education has claimed to pursue, what is clear is that physical education curricula in schools are, and look set to continue to remain, remarkably unchanged in form and focus. Thus, it is essential to pursue strategies for greater creativity within the framework of the existing NCPE. 'Real' slippage that

serves to bring to the fore discourses that have previously remained at the peripheries of practices in physical education demands that teachers make investments of energy, willingness, effort, and time, that they are motivated to change, understand the value in doing so, and are supported in the process. This research vividly demonstrated that developing knowledge and interest in addressing and/or challenging the existing structures and frames of the NCPE 'does not just happen'. The process is complex and always influenced by teachers' own life histories, their school and sport experiences, their initial training and ongoing professional development, as well as being shaped by their current school and teaching contexts, the particular pupils they are teaching and their perceptions of the needs of these pupils.

Initial Teacher Training

Arguably, the process of pursuing the scope for slippage that exists within the NCPE needs to begin in initial teacher training. However, like the NCPE, the frames inherent within initial teacher education are very strong and endorse what currently constitutes 'valued and legitimate' knowledge in and of physical education and what are considered to represent 'appropriate' pedagogies for the subject. Evans, Davies and Penney (1999) argue that institutions of Higher Education;

> ...may 'choose' to privilege particular elements of sports science, physiology rather than pedagogy, or purvey a view that child-centred rather than teacher-centred teaching is the more valued pedagogy, or that sport, rather than dance or other forms of physical recreation should be dominant in the curriculum of physical education.
>
> (p. 12)

Curtner-Smith (1999) has shown the ways in which experienced physical education teachers' described their training as promoting a 'conservative' rather than 'innovative' orientation to the subject where;

> ...the pedagogical component of these courses were taught by 'traditionalists' who had been or still were 'major games players' themselves. Therefore, not surprisingly, the focus of this pedagogical coursework was on teaching preservice teachers to perform and teach a fairly narrow range of 'traditional sports'.
>
> (p.89)

In essence, the traditional discourses prevalent in the NCPE are invariably reinforced within teacher training in physical education and vice-versa. There seems a continued absence of encouragement to prompt physical education teacher trainees to *critically reflect* upon the content, form and focus of the NCPE and appropriate pedagogies for teaching and learning. In important respects, this emphasis within the training of physical education teachers frames perceptions about the fundamental purposes of physical education, what physical education *should* be about, rather than what it *could* be about, and acts as a barrier to alternative interests, (particular those of health and physical activity), coming to the fore in physical education teacher training. In teacher training different philosophies and new practices for physical education can and should be encouraged. However, it is important to acknowledge that much teacher training is now school-based and as a result initial teacher training institutions are under pressure to meet the current needs, expectations and demands of schools, rather than some 'potential future' visions for the subject. The wider policy context in which teacher training institutions operate thus constrains the extent to which different interests and values can be promoted. Like teachers in schools, teacher educators are bound by the expectations and standards provided by government agencies (notably, OFSTED and the Teacher Training Agency) and the NCPE. Collectively, these policies and agencies serve to dictate and legitimate what physical education and becoming a qualified teacher of the subject is fundamentally 'about'. Yet, although I acknowledge the 'safety' in promoting established agendas and the risks associated with promoting different discourses, I contend that there remains scope for teacher educators to be innovative and progressive in their practices, and to prompt student teachers to develop creative readings and interpretations of the NCPE that advance the location and expression of more holistic visions for health and physical activity. However, it is important to recognise that teachers, new or experienced striving to develop such readings and practices need ongoing support.

Continued Professional Development

This research has shown that for creative readings of the NCPE to emerge in practice, teachers require sustained support and guidance. This is by no means a new emphasis (Evans and Penney (1994), yet the continued professional development (CPD) of physical education teachers remains a matter of concern. Like initial teacher training and the NCPE, CPD for physical education teachers seems currently dominated by

particular interests of and for the subject. Many current CPD opportunities arguably reinforce established discourses within the subject and what constitutes valued and legitimate knowledge within it. More specifically, CPD often comprises one-off sport specific 'top up' courses with little or no follow up (Armour, 2001). Provision of CPD reflects another arena in which sport discourses are frequently dominant (for example, 'Coaching for Teachers'[1], (www.sportscoachuk.org/developing/teachers/index.htm, 08/03/02), and where strong classification is evident and seemingly perpetuated. For many teachers of physical education, it seems likely that the kind of CPD provision they are most likely to encounter is exactly the type of provision that current CPD research deems to be the least effective in developing teachers pedagogical knowledge (Garet et al, 2001). Often courses are effective in teachers' gaining or renewing 'coaching' qualifications, yet is this what, or all, we should be concerned with? There is a notable need for alternative forms of CPD for physical education teachers that prompt the development of a 'pedagogy of learning' (Hargreaves, 2001a) for physical education, that is focussed on helping more pupils to achieve more of the valuable potential outcomes of physical education (for example, encouraging lifelong involvement in and enjoyment of physical activity, Armour and Yelling, 2002).

What scope for further slippage and different curricula?

The future of physical education is set to remain a matter of contestation, struggle and resistance. Young (1998) has argued that a focus on 'connectivity' within curricula has the potential to be a powerful stimulus for change as we seek to visualise and shape the futures we want to create. I argue that this research has signalled potential scope for 'connections' between physical activity and other interests within physical education rather than emphasise differences that set them apart from one another (Young, 1998). I agree that 'if we want a future significantly different from our present, we will need to educate out future citizens differently' (Paechter, 2000, p. 3). Yet, what does this mean for, or demand that we consider in physical education? In Penney and Chandler's (2000) view, if we desire to 'educate future citizens differently', the form and focus of physical education warrants debate. They suggest that the subject requires reorientation and restructuring and specifically question the

[1] Sportscoach UK (formerly the National Coaching Foundation) provides numerous sports specific coaching courses that are intended to provide for the professional development needs of physical education teachers. For example, Secondary Teacher Award in badminton.

appropriateness of the established activity-based structure for meeting the needs and aspirations of young people in contemporary society. They suggest that the 'contribution to learning' should be the defining feature of physical education and should provide the framework for its curriculum. Structuring the curriculum in new and different ways has the potential to signify a refocus on pedagogy, very clearly prompt the development of new messages, privilege different knowledge and signal a challenge to and/or displacement of the dominant voice in physical education (Penney and Chandler, 2000). Penney and Chandler (2000) outline a 'thematically orientated, rather than activity-based curriculum' (p.77) comprised of a series of strands of learning that could provide the focus for the curriculum, teaching and learning in physical education. These are movement and physical literacy, physical activity, health and fitness, competition and cooperation, and challenge (p.79-80). With this type of development, there seems greater potential for clearer expression of matters associated with physical activity and health. This proposed structure and focus for teaching and learning would arguably promote the integration of issues associated with health and physical activity to a position of centrality and importance within the curriculum, rather than remaining an incidental-by product of participation. Yet, previous discussion (see chapter 2), and the research presented throughout this thesis, points to the need to question whether the introduction of a thematically based structure would be acceptable to politicians, head teachers, teachers, parents and pupils. Given their 'expectations' of the subject, and for teaching and learning, would such a curriculum framework be recognised as 'physical education'? That said, in other contemporary contexts, there are examples of policies and curricula that have adopted such a structure and do accord discourses of health and physical activity a very high profile. For example, developments in parts of Australia have taken such an approach (see Penney, 1998b; Queensland School Curriculum Council, 1999[2]).

Research and Researchers

Research in physical education clearly has an important role to play if practice that promotes physical activity and health in physical education in positive and meaningful

[2] In contrast to curricula developments in England, 'sport' and specific activities are notable by their absence in the Queensland Health and Physical Education Syllabus, where promoting health and the importance of physical activity is located very visibly as the first and arguably most significant 'organising strand' for physical education curricula.

ways is to be nurtured and further developed. But who are researchers, who should they be, and how can research be integrated into practice? In my research, the importance of teachers' existing beliefs or their 'sense of purpose' for physical education was visibly significant in ultimately determining which discourses (for physical education and of health specifically) were privileged and which were subordinated in their teaching practices. Griffey and Housner (1999) point to research that has shown that it is possible to affect the beliefs that teachers have and impact upon their actions in classrooms, but that this 'occurs gradually over a long period of time' (p. 205). There is a clear link with CPD for teachers here. Arguably, teachers *themselves* are instrumental in the research process and greater collaboration between researchers and teachers is required to bring about changes in practice. In this respect, if physical education teachers are to prioritise pedagogies of teaching and learning associated with physical activity and health there is a need for sustained and supportive partnership based work in schools with teachers. Involving teachers deeply in their own practice, making practice the site for professional learning, and building explicit links between teacher learning and pupil learning seems a desirable direction for CPD that is seeking to promote change in belief systems and pedagogical practices in relation to what the subject is and should be fundamentally about. The recent 'Best Practice Research Scholarship' (www.teachernet.gov.uk/bprs, 10/05/02) government funding for teachers CPD represents an important step towards encouraging school-based research partnerships and presents some scope for the development of 'collaborative professional learning' (Hargreaves, 2001b). Yet, this scope has been criticised due to inadequate funding and the relatively short duration and sustainability of the scholarships (Mitchell and Hogg, 2001).

Personal reflection on the research process

As I have previously explained (see chapter 3), throughout this research I had a desire to ask questions that were difficult to locate solely within the realms of one established research tradition in physical education. Rather, the journey of the research presented in this thesis has helped me recognise the importance of the contribution of diverse and different forms of research to teaching and learning in physical education. As my research progressed it became all too clear that no single research method would have been adequate to explore the range and depth of issues

associated with physical activity in physical education that my research enquiries engaged with and gave rise to. A mixed-method approach was not straightforward and proved demanding as I grappled with developing my knowledge and understanding of different approaches to research and different methods. However, I regard this process as having added strength, diversity and connections to my research. It has enriched my own understanding of different approaches to enquiry. Engaging with the complex issues raised in this thesis has promoted the compatibility of research perspectives and, in doing so, it has sought to reduce the polarisation associated with 'traditional' approaches to research. I consider the challenges that I faced as having contributed towards my ongoing development as a 'compleat researcher' (Gorad, 2002) within the field of education and physical education.

## Conclusion: Multiple discourses in physical education in England: Continued contestation?

This thesis is especially timely given that the contemporary context of physical education in England is one where connections between physical education, sport, physical activity and health have recently been reaffirmed by government and by sporting and health organisations. In a report of a recent survey (Participation in Sport, Past Trends and Future Prospects, 2002) Sport England identified a decline in the number of people participating in sport in the UK. For Trevor Brooking (Chair of Sport England) the findings represented 'a worrying trend that has major implications for the health of our nation' and he stressed that to address this decline the government should place sport much higher on the nations agenda (www.sportengland.org/press_releases, 15/02/02). The Central Council of Physical Recreation (CCPR) also recently issued a call for the Government to 'invest in school sport and tackle obesity' (www.ccpr.org.uk/media/content/obesity, 28/11/01). Specifically, the CCPR contend that the declining participation in exercise and the growing epidemic of 'couch kids' represents a potential 'time bomb' for the National Health Service and they highlight the importance of 'joined up Government' for sport (www.ccpr.org.uk/media/content.alms, 14/02/02). In response to these concerns and claims, Minister for Sport, Richard Caborn recently said, 'I believe in getting them when they're young'. He stressed the government's commitment to the importance of providing greater opportunity for physical activity participation through their target of

raising the time 6 to 16 year olds spend on sport and physical education (www.sportengland.org/press_releases, 15/02/02).

These statements illustrate that interests in physical activity and health remain at the forefront of debates about physical education, and yet, in many instances this association is arguably accompanied by and/or set within a significant focus on sport. In parallel with concerns relating to 'coach potato kids', the government also claims a commitment to a 'vision' for sport in schools. 'A Sporting Future for All' (DCMS, 2000) contends that 'the government has the highest aspirations for sport in this country' and suggest that 'England's schools have a proud tradition of providing high quality physical education and sport' (p.5) and that this tradition will be developed and improved through rebuilding sports facilities, the creation of Specialist Sports Colleges, increasing opportunities for young people to participate in sport, establishing school sports co-ordinators and providing coaching and support for 'elite' child athletes. We also continue to see the ways in which the government repeatedly reaffirms the privileged status of sport in the ongoing development of the NCPE (DfEE/QCA, 1999, see also chapter 2).

Arguably, through initiatives and policy development in education, sport and health, the physical education and health link is being strengthened, but in the context of the continued privileging of sport as the key discourse. In essence, the messages to teachers remain 'mixed and muddled'. Should teachers be seeking to include appropriate activity in physical education lessons to make pupils knowledgeable, feel comfortable, confident and competent with a desire to pursue an active and healthy lifestyles? Or is the underlying focus one of seeking to engage pupils in sport to develop and improve pupils' (and the nations?) 'sporting excellence'? To what extent do these statements from government, and the increasing number of 'joint initiatives' *imply* the potential for compatibility of these 'different' discourses? The research reported in this thesis certainly pursued and illustrated the capacity to facilitate the realisation of 'alternative' aims and futures for learning within physical education. Penney and Chandler (2000) have drawn attention to Young's (1998) emphasis that 'we need to remember that futures have to be made, they do not just happen' (p. 79). But, what is the future for physical education and active experiences within it, and the location and expression of (certain) discourses of health? For Jones (2002) the

problem of activity promotion in young people is complex. She contends that despite the increasing awareness of the risks of 'lifestyle diseases' and the rise in the influx of 'health initiatives' for schools planning to combat them (for example, the British Heart Foundation and Sport England 'Active Schools'[3]), schools do not have the resources and experience to promote health, and need help in promoting active lifestyle messages to pupils. She calls for the National Health Service to provide capital and resources to enable 'a nationwide all-inclusive approach to children's health with education, health and social services working together to deliver an integrated child-centred policy' (p.2).

As this research has shown, for some pupils, physical education remains a subject to avoid, one within which they feel excluded, experience alienation, elitism, and unfavourable physical discomfort associated with physical activity. Physical education, and experiences of physical activity within the subject, should be enjoyable, comfortable, rewarding and fulfilling for all pupils. Teachers, teacher educators, researchers and policy makers need to continue to address the multiple claims made by physical education and critically reflect upon whose and what 'interests' the subject be privileging and/or marginalizing, and 'what kinds of learners for what kinds of society' (Edwards, 2002, p.158) the subject should seek to contribute towards. With Paechter (2000), I contend that within the physical education curriculum 'there is space for resistance, for active transgression, for the breaking down of boundaries and the development of new forms' (p.207). For me, the contemporary demands of modern society signal the need for change in relation to whose and what interests are privileged in physical education. In particular, my interests remain in the subject facilitating the pursuit of diverse, meaningful, positive, active experiences that encourage health-enhancing lifestyles for current and future citizens. These agendas are set to remain a central feature of my research.

[3] Active Schools is an joint BHF and Sport England initiative aimed at providing 'schools and teachers with the support, training and resources they need to give children the best possible physical education and sports provision. Its range of integrated products and services has been developed and consolidated through extensive consultation with Sport England's partners in the government, education, sport and health sectors' (see www.sportengland.org/active_schools/pages/intro.htm, 15/05/02).

# APPENDICES

| | NCPE Proposals | Project group changes | EKSS NCPE (1992) | EKSD NCPE (1995) | Levels NCPE (2000) |
|---|---|---|---|---|---|
| KS1 | Recognise the effects of physical activity on their bodies | Recognise and describe the immediate and short term effects of physical activity on their bodies | Recognise the effects of physical activity on their bodies | Recognise and describe the changes that happen to their bodies during exercise | 2. Understand how to exercise safely, and describe how their bodies feel during different activities |
| KS2 | Be able to sustain energetic activity over periods of time and understand the effects on the body | Demonstrate sustained involvement over appropriate periods of time in a range of energetic physical activities and understand the immediate and short term effects of those physical activities on the body | Sustain energetic activity over appropriate periods of time in a range of physical activities and understand the effects of exercise on the body | Sustain energetic activity over appropriate periods of time, and demonstrate that they understand what is happening to their bodies during exercise | 4. Describe what effects exercise has on their bodies, and how it is valuable to their fitness and health |
| KS3 | Understand the short and long term effects of exercise on the body and decide where to focus their involvement in physical activity for a healthy and enjoyable lifestyle. | Experience and understand the short and long term effects of exercise on the various body systems and negotiate, follow and monitor participation in a safe and effective personal exercise programme. | Understand the short and long term effects of exercise on the body systems and decide where to focus their involvement in physical activity for a healthy and enjoyable lifestyle | Understand the short-term and long-term effects of exercise on the body systems, and demonstrate how to prepare for particular activities and how to recover after vigorous physical activity | 6. Explain how to prepare for, and recover from, the activities. Explain how different types of exercise contribute to their fitness and health and describe how they might get involved in other types of activities and exercise |
| KS4 | Prepare and carry out personal programmes for a healthy and enjoyable lifestyle, considering the use of community resources where appropriate | Plan, carry out and evaluate a safe and effective personal exercise programme which is conducive to a healthy and enjoyable lifestyle and utilises community opportunities where appropriate. | Prepare, carry out and monitor personal programmes for a healthy and enjoyable lifestyle, considering the use of community resources where appropriate. | Regularly participate in health-promoting physical activity, and show an understanding of the principles used to prepare and monitor an exercise programme for a healthy lifestyle | Use their knowledge of health and fitness to plan and evaluate their own and others' exercise and activity programme. |

## Appendix B: Health issues and breadth of study in the NCPE

| | PoS general 1992 | NCPE 1995 PoS Intro paragraphs | Aspect statements NCPE 2000 |
|---|---|---|---|
| | Pupil should: | Throughout the key stage, pupils should be taught: | Pupils should be taught: |
| KS1 | Be made aware of the changes that happen to their bodies during exercise | About the changes that occur to their bodies as they exercise<br><br>To recognise the short-term effects of exercise on the body | How important it is to be active<br><br>To recognise and describe how their bodies feel during different activities |
| KS2 | Understand the value of and demonstrate sustained activity over appropriate periods of time<br><br>Understand the immediate and short term effects of exercise on the body<br><br>Understand and demonstrate how to prepare for particular activities and to recover afterwards. | How to sustain energetic activity over appropriate periods of time in a range of physical activities<br><br>the short-term effects of exercise on the body. | How exercise affects the body in the short term<br><br>To warm up and prepare appropriately for different activities<br><br>Why physical activity is good for their health and well-being<br><br>Why wearing appropriate clothing and being hygienic is good for their health and safety |
| KS3 | Be given the opportunity to plan and undertake simple and safe health related exercise in the context of different areas of activity, understanding the principles involved.<br><br>Be taught to understand the short and long term effects of exercise on the body systems<br><br>Be made aware of the increasing need for personal hygiene in relation to vigorous activity<br><br>Be taught how to prepare for and recover from specific activity. | be given the opportunity to engage in health-promoting physical activity, where possible within the local community.<br><br>They should be taught:<br>How to prepare for particular activities and to recover afterwards;<br><br>The short-term and long-term effects of exercise on the various body systems<br><br>The role of exercise in establishing and maintaining health. | How to prepare for and recover from specific activities<br><br>How different types of activity affect specific aspects of their fitness<br><br>The benefits of regular exercise and good hygiene<br><br>How to go about getting involved in activities that are good for their personal and social health and well-being |
| KS4 | Be shown how to use the various opportunities for physical activity in the local area<br><br>Be encouraged to show that they undertake regular physical activity conducive to a healthy and enjoyable lifestyle<br><br>Be taught to understand how to organise and monitor an activity schedule that leads to an improvement in fitness | pupils should be given opportunities to participate in frequent physical activity conducive to a healthy lifestyle. They should be taught:<br><br>To plan, undertake and evaluate a safe health promoting exercise programme;<br><br>To show understanding of the principles involved. | How preparation, training and fitness relate to and affect performance<br><br>How to design and carry out activity training programmes that have specific purposes<br><br>The importance of exercise and activity to personal, social and mental health and well-being<br><br>How to monitor and develop their own training, exercise and activity programmes in and out of school |

Appendix C: Validity of a pictorial perceived exertion scale for effort estimation and effort production during stepping exercise in adolescent children.

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Abstract

Recent developments in the study of paediatric effort perception have continued to emphasise the importance of child-specific rating scales. The purpose of this study was to examine the validity of an illustrated 1 – 10 perceived exertion scale; the Pictorial Children's Effort Rating Table (PCERT). 4 class groups comprising 104 children; 27 boys and 29 girls, aged 12.1±0.3 years and 26 boys, 22 girls, aged 15.3±0.2 years were selected from two schools and participated in the initial development of the PCERT. Subsequently, 48 of these children, 12 boys and 12 girls from each age group were randomly selected to participate in the PCERT validation study. Exercise trials were divided into 2 phases and took place 7 to 10 days apart. During phase 1, children completed 5 x 3-minute incremental stepping exercise bouts interspersed with 2-minute recovery periods. Heart rate (HR) and ratings of exertion were recorded during the final 15 s of each exercise bout. In phase 2 the children were asked to regulate their exercising effort during 4 x 4-minute bouts of stepping so that it matched randomly prescribed PCERT levels (3, 5, 7 and 9). Analysis of data from Phase 1 yielded significant ($P<0.01$) relationships between perceived and objective (HR) effort measures for girls. In addition, the main effects of exercise intensity on perceived exertion and HR were significant ($P<0.01$); perceived exertion increased as exercise intensity increased and this was reflected in simultaneous significant rises in HR. During phase 2, HR and estimated power output ($PO_{approx}$) produced at each of the four prescribed effort levels were significantly different ($P<0.01$). The children in this study were able to discriminate between 4 different exercise intensities and regulate their exercise intensity according to 4 prescribed levels of perceived exertion. In seeking to contribute towards children's recommended physical activity levels and helping them understand how to self-regulate their activity, the application of the PCERT within the context of physical education is a desirable direction for future research.

Introduction

The use of ratings of perceived exertion in assisting with the prescription and monitoring of physical activity in adults is well established. This is based upon the positive association between perceptions of exertion and corollary physiological mediators and relies upon the principle that whilst exercising, an individual can monitor and evaluate feelings of strain in the muscles, joints and cardiopulmonary system (Gillach et al., 1989; Williams and Eston, 1989). Research into ratings of perceived exertion has primarily involved the use of the Borg 6 – 20 Rating of Perceived Exertion Scale (RPE; Borg, 1998). In adults the application of perception of effort, particularly using the RPE scale, has received much research attention. In contrast, research exploring young peoples' understanding and perception of effort during exercise is limited (Lamb and Eston, 1997; Eston and Lamb, 2000). The RPE scale application and practical suitability for use with children has been questioned. More specifically, Williams et al. (1994) have reported that young people are particularly puzzled by both the wording and the range of numbers used in the RPE scale and have suggested that although the idea of the RPE scale might be assimilated by children, a child-specific version would be more meaningful.

Considering the need for such a scale a number of more appropriate child-specific rating scales have recently been designed. These include the Children's Effort Rating Table (CERT; Williams et al., 1994), the Cart and Load Effort Rating Scale (CALER; Eston et al., 2000) and the OMNI scale, (Robertson et al., 2000). The majority of previous research into children's perceptions of effort using these recently developed scales has been in an attempt to establish their validity and reliability and address fundamental aspects of methodology (Lamb, 1999). Although the reliability and validity of these alternative scales has yet to be unequivocally established, studies in young children (aged 8 to 11) using CERT have shown it to have greater validity when compared to the traditionally adopted RPE scale (Lamb, 1995, 1996).

In recognising the methodological and cognitive limitations of adult-formatted effort perception scales, researchers of perceived exertion in children have integrated more meaningful child-specific verbal descriptors of effort levels alongside numerical indicators to describe different exercise intensities (Williams et al., 1994). It has also been suggested that to promote a greater conceptual understanding of the effort continuum in children more meaningful pictorial scale descriptors are required (Noble and Robertson, 1996).

However, only a few studies have included pictorial images to depict different stages of exercise effort (Nystad et al., 1989; Eston et al., 2000; Robertson et al., 2000).

In addition to these existing scale difficulties, the majority of perceived exertion studies using children have adopted cycle ergometry as a testing protocol (Lamb, 1995, 1996; Robertson et al., 2000, Eston et al., 2000). Lamb and Eston (1997) have suggested that children's perceptions of effort should be investigated using a variety of other exercise modes. Recently, Eston, Parfitt and Shepherd (2001) used a stepping exercise task in their study exploring the validity and reliability of three different child-specific scales. Previous studies exploring child-specific rating scales have also predominantly used younger children (under 10 years) as the study population. Apart from the OMNI scale (validated amongst 8 to 12 year old boys and girls), no other investigations with such scales have incorporated adolescent children in their samples.

To date, investigations exploring children's perceptions of effort have predominantly been confined to laboratory conditions with only a small number of studies addressing the external validity of children's effort responses (Ward and Bar-Or, 1990; Ward et al., 1990; Stratton and Armstrong, 1994; Cowden and Plowman, 1999). Although the potential value of children's ratings of effort in terms of promoting appropriate physical activity levels has been recognised (Eston, 1984; Lamb and Eston, 1997), the concept has yet to be applied within a physical education setting. Stratton and Armstrong (1994) explored children's perceptions of effort using the Borg RPE scale during physical education lessons (indoor handball) by asking pupils to estimate exercise intensity experienced immediately after lessons had occurred. These authors concluded that children (aged 12-13) had poor perceptions of the intensity of exercise in physical education. More recently, Green and Lamb (2000) and Penney and Yelling (2001) and have strengthened the case for using effort perception in physical education through suggesting ways in which children's perceptions of effort (via child-specific effort rating scales) could be incorporated in the delivery of aspects of Health-Related Exercise within the National Curriculum for Physical Education (NCPE).

In guiding young people towards being able to exercise independently, physical education teachers should be aware of recommendations relating to what type and how much physical activity is desirable (Biddle, Cavill and Sallis, 1998). They also need to reflect

critically upon *how* they might involve their pupils in appropriate levels of activity during physical education lessons. What pedagogical approaches or teaching strategies are available that have the capacity to advance children's understanding of these issues in an 'active way' and enable them to monitor their own activity levels and equip them with the knowledge and understanding to participate in physical activity that is appropriate for them? How can this be done in an 'integrated' manner in physical education so that understanding of activity and engagement in appropriate levels of activity is consistently developed? Addressing such integration demands an engagement directly with children's understandings of and abilities to self-monitor, and self-regulate their own levels of activity, in various (and often unpredictable) activity settings.

The purpose of this preliminary investigation was to explore the concurrent validity of an illustrated perceived exertion scale based on the words and numbers used in the CERT (Williams et al., 1994). More specifically, the intent was to establish the relationship between exercise intensity and rating of effort using this new scale in children aged 11 to 12 and 14 to 15, and to subsequently assess the ability of these groups of children to regulate their exercise intensity in accordance with specific levels of the new scale.

## Method

### Participants

Participants were 104 children; 27 boys and 29 girls, (age 12.1 ± 0.3 years; M ± SD) and 26 boys, 22 girls, (age 15.3 ± 0.2 years; M ± SD) who gave informed parental and child consent for participation in the initial development of a pictorial version of the Children's Effort Rating Table (PCERT). These children consisted of 2 mixed year 7 (Grade 6) classes and 2 single sex year 10 (Grade 9) classes at a Middle or Upper School in Bedfordshire, England. 48 children (12 boys and 12 girls from each age group) were subsequently randomly selected to participate in the validation (exercise) trials. Descriptive characteristics of the children recruited for subsequent exercise trials are presented in Table 1

Table 1. Participant characteristics (M ± SD).

| Group | n | Age (Years) | Stature (m) | Mass (kg) |
|---|---|---|---|---|
| Yr 7 Boys | 12 | 12.2 ± 0.3 | 1.54 ± 0.1 | 50.5 ± 13 |
| Yr 7 Girls | 12 | 12.5 ± 0.3 | 1.51 ± 0.1 | 41.7 ± 9 |
| **Combined** | **24** | **12.4 ± 0.3** | **1.52 ± 0.1** | **46.1 ± 11.8** |
| Yr 10 Boys | 12 | 15.3 ± 0.3 | 1.70 ± 0.1 | 58.3 ± 8.5 |
| Yr 10 Girls | 12 | 15.3 ± 0.2 | 1.61 ± 0.1 | 52.9 ± 5.8 |
| **Combined** | **24** | **15.3 ± 0.3** | **1.65 ± 0.1** | **55.6 ± 7.6** |
| **All** | **48** | **13.8 ± 1.5** | **1.59 ± 0.1** | **50.9 ± 11** |

Procedures

Development of the pictorial version of the Children's Effort Rating Table (PCERT)

Four classes of children (n=104) who were initially recruited for the study participated in a physical education lesson (either soccer or netball) delivered by the first author. The four lessons (one per class) were developed to include a variety of different developmentally appropriate activities that were intended to provide the children in each class with the opportunity to experience the breadth of the exercise continuum. The lessons included a gentle warm-up activity and two soccer (boys) or two netball (girls) skill-based practices. These practices were designed to elicit contrasting levels of physical activity, one practice being of 'light' intensity and the other of 'vigorous' intensity. The lessons also included a relay running activity and a small-sided team game activity. Throughout the lesson the children were questioned (by the first author) about and asked to consider the exercise sensations they were experiencing during the different activities. This included reflecting upon their degree of breathlessness, degree of muscular ache or pain, and any changes in body temperature. Immediately after participation in this lesson a series of separate illustrations depicting a young person dressed in typical school physical education kit running at 5 different effort levels was presented randomly to each of the children. The children were also shown a modified version of the previously validated CERT scale (Eston et al., 1994; Lamb, 1995, 1996; Williams et al., 1994). Presentation of this scale had been adapted to show the different verbal and numerical (1 to 10) effort level descriptors drawn onto a series of visibly inclining steps. The children were then asked to reflect upon their own exercise feelings and sensations during the previous lesson and to describe their different effort levels by individually positioning the five pictorial

descriptors alongside the most appropriate numerical and verbal anchor point on the steps. The frequency with which the children positioned the same pictorial illustration alongside the same verbal descriptor and numerical anchor was recorded and the most commonly chosen format was selected to represent the pictorial version of the Children's Effort Rating Table (PCERT). This combination of verbal and pictorial descriptors and numerical anchors is shown in Figure 1. The PCERT has previously appeared in presented a critical review of effort perception in children (Eston and Lamb, 2000).

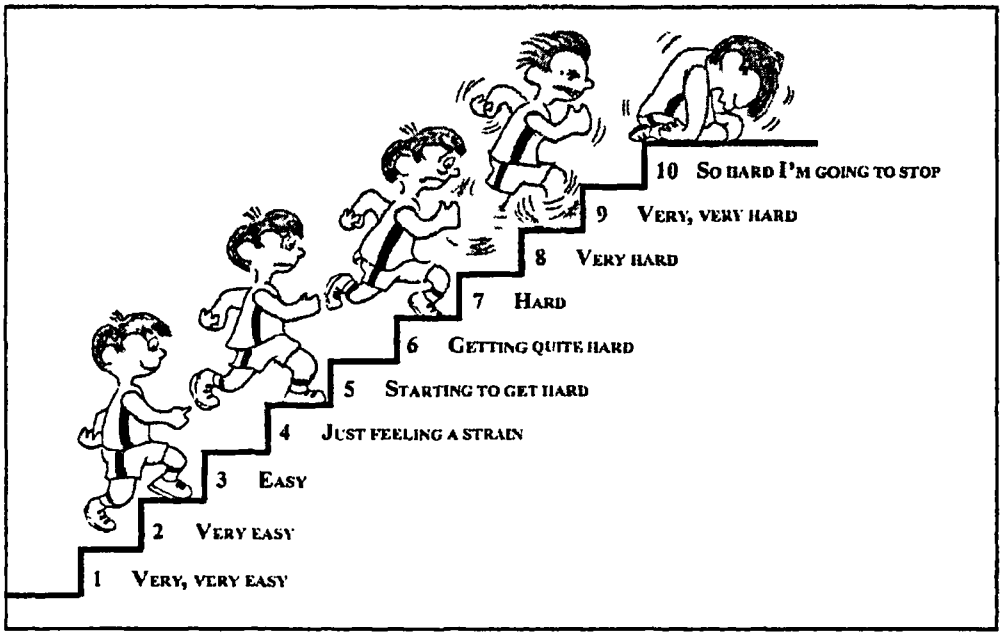


Figure 1: The Pictorial Children's Effort Rating Table (PCERT)

Exercise Trials

The evaluation of the PCERT validity during exercise involved 2 phases of testing with the 4 groups of children (n=48). The first was designed to assess children's ratings of effort at different predetermined exercise intensities, and the second was designed to explore their ability to use pre-specified ratings of perceived exertion to generate four different effort levels. In this way, the new scale was being applied in both its 'estimation' and 'production' modes (see Kinsman and Weisser, 1976).

One week prior to the commencement of exercise trials, each child received an information pack to study and keep. This included details of the exercise tasks, a copy of the scale and related instructions for its use. Subsequently, each child then completed two exercise tasks that took place on school premises 7 to 10 days apart.

Phase 1

To assess the validity of children's ratings of effort using the illustrated scale a stepping protocol was chosen for ease of administration within a school-based environment and as an alternative to the commonly chosen method of cycle ergometry. The stepping protocol was a modified version of existing protocols that have been developed for use with children and was designed to allow participants to experience 5 different exercise intensities (Bar-Or, 1983, p. 322; Williams et al., 1994). The procedure required that each child stepped onto and down from a height-adjustable block in time with an electronic metronome. The protocol consisted of 5 x 3-minute exercise bouts, interspersed with 2-minute recovery periods. Exercise intensity was manipulated by adjusting the step height and/or the stepping rate in the pattern shown in Table 2. Level 1 was preceded by a 3-minute warm up at level 0 to familiarise children with the stepping rates and a 2-minute recovery period.

Table 2. The stepping protocol

| Level | Step height (m) | Step rate ($steps \cdot min^{-1}$) | $PO_{approx}$ ($w \cdot kg^{-1}$) |
|---|---|---|---|
| **0** | 0.2 | 25 | 1.09 |
| **1** | 0.25 | 28 | 1.52 |
| **2** | 0.25 | 30 | 1.63 |
| **3** | 0.3 | 32 | 2.09 |
| **4** | 0.3 | 34 | 2.22 |
| **5** | 0.35 | 36 | 2.74 |

Prior to the exercise task each child was reintroduced to the PCERT scale and the concept of perceived exertion was defined using a standardised verbal definition developed from Noble and Robertson (1996, p.78). Each child was provided with a description of the range of sensations that corresponded to different effort levels on the scale using 'memory' and 'definition' anchoring techniques. Anchoring by 'memory' involved asking the children to recall the range of exercise sensations experienced during their

participation in previous physical activity, including the physical education lesson that focussed on perceived exertion. Anchoring by 'definition' involved providing the children with a standardised verbal description of exercise feelings associated with numbers 2 and 10 on the scale. These definitions were population-specific and based upon examples familiar to each child. The nature and use of the scale during the exercise trial and the correctness of perceptual response, that is, the inclusion of the statement that there are no 'right or wrong' answers, was explained to each child in a standardised manner. The children were also given the opportunity to ask any questions. Each of the standardised explanations and instructions were adapted from principles described by Maresh and Noble (1984).

Heart rate (HR) was monitored continuously throughout the entire stepping task using HR telemetry (Polar Vantage NV, Polar Electro, Oy, Kempele, Finland) and was recorded during the final 15 s of each exercise level. The scale was visible at eye level from a distance of 0.5 m to all children throughout the exercise task. The children were asked to provide a rating of perceived exertion 15 s prior to the completion of each exercise level by referring to the words and pictures and pointing to the number that best described their effort. The exercise was terminated if the child responded with an effort level of 10 or if he/she was unable to maintain the predetermined step rate for more than 30 s continuously.

Phase 2

The second phase of data collection was concerned with the ability of the children to adjust their physical efforts in relation to their perceptions of effort. This 'production' phase required that the children regulate their exercise intensity during a stepping protocol to match four randomly assigned ratings of perceived exertion. These levels were 3, 5, 7 and 9. Prior to the exercise task the children were reminded of the nature and use of the scale and received the same anchoring procedures detailed above. The purpose and procedures of the new exercise task were described using a standardised set of verbal instructions.

The exercise task commenced using an identical warm-up protocol described for Phase 1. During the recovery period an arrow indicating the required effort level to be produced in the next exercise stage was placed alongside the corresponding number on the scale for the

child to see. Each subsequent exercise stage lasted 4 minutes. During the 2 minute recovery period and during the first 2 minutes of each exercise bout the experimenter asked the child a series of standardised questions to allow him/her to manipulate the step height and step rate until he/she reached the prescribed effort level. Firstly, each child was asked if he/she would like to keep the step at the same height, step higher, or step lower. The experimenter adjusted the step height accordingly in 0.05 m increments during the rest period. During the first 2 minute exercise period the child was then asked to confirm the selection of step height and was subsequently asked at regular intervals (20-30 s) if he/she would like to step faster, slower or at the same speed to produce the prescribed effort level. The stepping rate was adjusted accordingly by the experimenter in increments of 2 steps·min$^{-1}$ until the child indicated the prescribed effort level had been reached. The child continued to step at his/her chosen exercise intensity for the remaining 2 minutes of the exercise level. This protocol was repeated for the 4 prescribed PCERT levels. Heart rate was monitored throughout each exercise stage and recovery period. The prescribed rating of perceived exertion (PCERT) and the child's HR were recorded during the final 15 s of each exercise stage. The individually selected step heights and step rates for each prescribed rating level were recorded to allow the subsequent calculation of approximate power outputs ($PO_{approx}$). $PO_{approx}$ (W) was calculated based on the formula described by Bar-Or (1983, p. 322).

Data analysis

A 3-factor ANOVA; age (2) x gender (2) x exercise intensity (4) with repeated measures on intensity was used to analyse differences in HR and perceived exertion during Phase 1. The relationship between PCERT ratings and HR responses at each intensity level was quantified with a Pearson correlation coefficient for each group of children. For Phase 2 data, the HR and $PO_{approx}$ variability at each effort level (3, 5, 7, and 9) 'produced' during the second exercise trial was analysed with a 3-factor ANOVA; age (2) x gender (2) x rating (4) with repeated measures on the rating factor. Significant effects were followed up with multiple dependent t-tests (with a Bonferroni adjustment to maintain the alpha level at 0.05). The assumption of sphericity was checked using the Mauchly test, and where necessary, the Greenhouse-Geisser adjustment was applied to the analysis of variance.

Results

Phase 1

The number of children completing each of the stepping levels was 48 to level 3, 44 to level 4 and 32 to level 5. To explore the greatest exercise (and perceptual) range, data from the four levels completed by 44 children were used in subsequent analysis. During this 'estimation' phase, HRs across all age groups ranged from 152 ±2.6 b·min$^{-1}$ (M ± SD) at level 1 through to 183 ± 2.5 b·min$^{-1}$ (M ± SD) at level 4. Older children and boys had lower HRs than younger children and girls, respectively. Ratings of exertion ranged from 3.3 ± 0.1 (M ± SD) at level 1 to 7.9 ± 0.3 (M ± SD) at level 4. Descriptive data for HR and perceived exertion for all groups (boys, girls, 11-12; 14-15yrs) for exercise levels 1 to 4 are provided in Table 3. The main effect of exercise intensity on HR was significant ($F_{1.7,120} = 332.2$, $P<0.001$). An increase in exercise intensity resulted in simultaneous rises in HR. Post-hoc comparisons showed that HR at each exercise level was significantly higher than the preceding level ($P<0.0166$). Significant age ($F_{1,40} = 18.2$, $P<0.001$) and gender ($F_{1,40} = 10.4$, $P<0.01$) main effects on HR were also found with the younger children having higher heart rates than the older children and the girls' heart rates being higher than the boys'. All interaction effects were non-significant.

Table 3. Heart rates (b·min$^{-1}$) and PCERT ratings for children aged 11 to 15 (n=44) during incremental stepping levels 1 to 4.Values are M ± SEM. B=boys, G= girls, Co = combined, AllB = all boys, AllG = all girls, Ac = All groups

| | | Level 1 | | Level 2 | | Level 3 | | Level 4 | |
|---|---|---|---|---|---|---|---|---|---|
| | Age | HR | PCERT | HR | PCERT | HR | PCERT | HR | PCERT |
| B | 11-12 | 158±5.8 | 3.3±0.3 | 167±5.3 | 4.5±0.4 | 181±4.7 | 7.1±0.4 | 190±3.9 | 8.8±0.5 |
| G | 11-12 | 162±3.6 | 3.1±0.3 | 172±3.6 | 4.4±0.2 | 187±2.7 | 6.4±0.3 | 194±3.0 | 8.2±0.5 |
| **Co** | **11-12** | **160±3.4** | **3.2±0.2** | **169±3.3** | **4.4±0.2** | **184±2.7** | **6.7±0.3** | **192±2.5** | **8.6±0.3** |
| B | 14-15 | 135±2.5 | 3.3±0.6 | 141±2.1 | 4.3±0.3 | 159±3.1 | 5.6±0.3 | 166±3.1 | 6.8±0.4 |
| G | 14-15 | 155±4.9 | 3.5±0.2 | 164±5.1 | 4.7±0.3 | 179±4.8 | 6.6±0.5 | 182±4.8 | 7.8±0.6 |
| **Co** | **14-15** | **145±3.4** | **3.4±0.1** | **152±3.6** | **4.5±0.2** | **168±3.5** | **6.1±0.3** | **173±3.2** | **7.2±0.4** |
| **AB** | **11-15** | **146±3.9** | **3.3±0.2** | **153±3.9** | **4.3±0.2** | **170±3.6** | **6.3±0.3** | **177±3.5** | **7.7±0.4** |
| **AG** | **11-15** | **159±3.0** | **3.3±0.2** | **168±3.1** | **4.5±0.2** | **183±2.8** | **6.5±0.3** | **188±3.0** | **8.0±0.4** |
| **Ac** | **11-15** | **152±2.6** | **3.3±0.1** | **161±2.8** | **4.4±0.1** | **176±2.5** | **6.4±0.2** | **183±2.5** | **7.9±0.3** |

The main effect of exercise intensity on perceived exertion rating was also significant ($F_{1.9,120}$ =331.87, $P$<0.001). Children reported an increase in perceived exertion with parallel increases in exercise intensity. Post-hoc analysis revealed that the PCERT ratings at each intensity level were significantly higher than the preceding level ($P$<0.0166). There was also a significant interaction of age and exercise intensity on perceived exertion ($F_{1.9,120}$ = 9.03, $P$<0.001), with post-hoc comparisons showing that at stepping intensities of 3 and 4 the older children reported significantly lower ratings than the younger children (Figure 2).

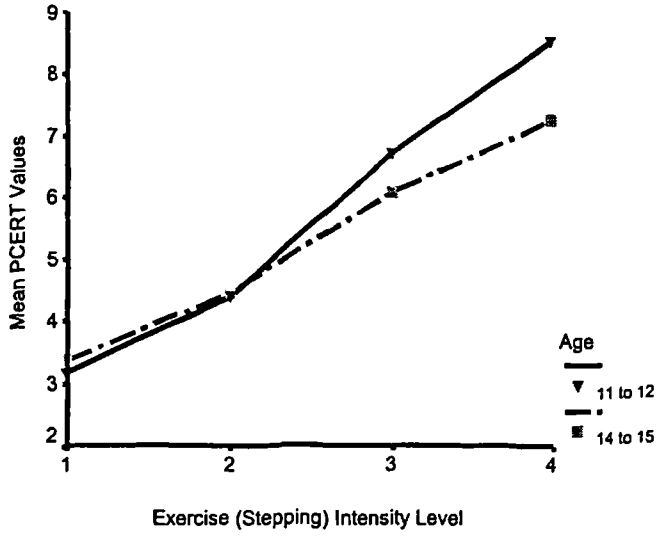


Figure 2. Interaction of Age x Exercise Intensity on PCERT ratings.

The bi-variate correlation analysis of the HR and perceived exertion data showed that for the girls, HRs were significantly related to their PCERT scores across all exercise intensities (apart from level 4 in the youngest group). However, this pattern was not replicated amongst the boys, where only one coefficient (at level 1 in the oldest group) was significant (see Table 4).

Table 4. Correlation coefficients between Pictorial Children's Effort Rating Table (PCERT) score and Heart Rate (HR), at four exercise intensities, in the four groups of children.

| Group | Exercise level | | | |
|---|---|---|---|---|
| | 1 | 2 | 3 | 4 |
| **Boys 11-12** | 0.43 | 0.31 | 0.20 | 0.21 |
| **Girls 11-12** | 0.61* | 0.54* | 0.66* | 0.36 |
| **Boys 14-15** | 0.52* | 0.39 | 0.26 | 0.34 |
| **Girls 14-15** | 0.66* | 0.79* | 0.83* | 0.87* |

*$P < 0.05$

Phase 2

HR and $PO_{approx}$ values for Phase 2 are represented in Figure 3. The variability in produced HR was found to be significant ($F_{2.2,132}$ =154.2, P<0.001), and post-hoc comparisons revealed that HR at each PCERT rating was significantly different from the preceding level (P<0.0166). There were also significant main effects for gender ($F_{1,44}$ = 10.3, P<0.01) and age ($F_{1,44}$ = 23.4, P<0.001) on HR, with higher HR observed in girls and in younger children. No interaction effects involving HR were significant.

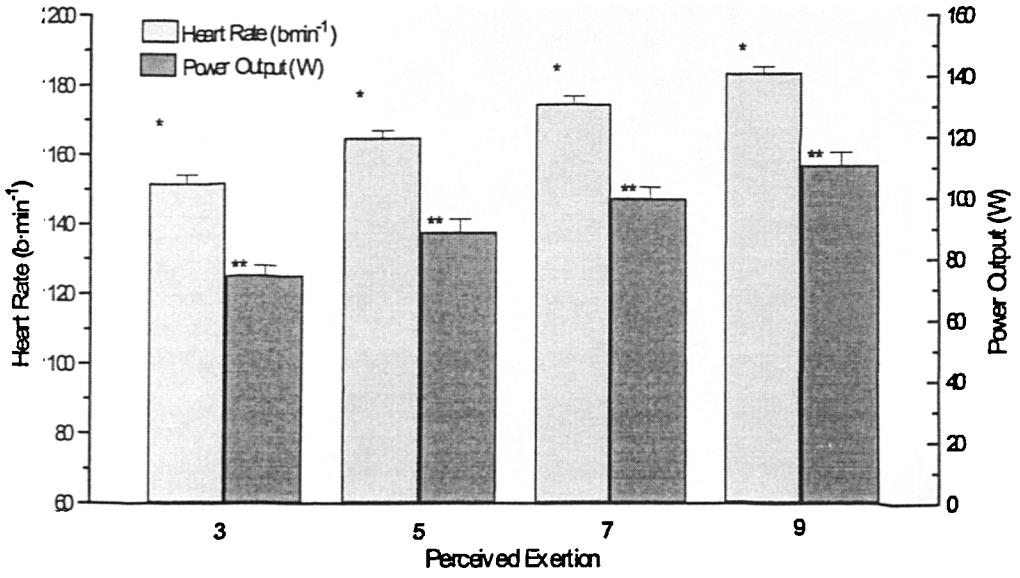


Figure 3. Produced heart rates (HR) and corresponding estimations of Power Output Values are M ± SE, * HR P<0.01 ** PO P<0.01.

For $PO_{approx}$ (see Table 5) the main effect of PCERT ratings was significant ($F_{2.2,132}$ =124.3, P<0.001). and as with HR, post-hoc analysis revealed the $PO_{approx}$ values at each exercise level to be significantly different from the preceding level (P<0.0166). The main effects of gender ($F_{1,44}$ = 8.7, P<0.01) and age ($F_{1,44}$ = 22.2, P<0.001) on produced $PO_{approx}$ were also significant. Boys produced greater $PO_{approx}$ than girls and older children produced greater $PO_{approx}$ than younger children. The interaction effects of gender and effort level ($F_{2.2,132}$ = 3.3, P<0.05) and age and effort level ($F_{2.2,132}$ = 5.6, P<0.01) were significant, but due only to slightly smaller $PO_{approx}$. differences between boys and girls and older and younger children, respectively, found at the lightest exercise level only.

| | PCERT Level | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Grp | 3 | | 5 | | 7 | | 9 | |
| Age(yr) | HR | $PO_{approx}$ | HR | $PO_{approx}$ | HR | $PO_{approx}$ | HR | $PO_{approx}$ |
| B11-12 | 157±4.7 | 68.4±5.0 | 170±3.9 | 82.3±5.1 | 179±3.7 | 92.5±5.3 | 187±3.3 | 100.0±6.4 |
| G11-12 | 137±2.8 | 90.4±6.2 | 149±3.6 | 114.7±10.6 | 161±3.4 | 126.8±8.2 | 172±2.7 | 140.1±8.6 |
| B14-15 | 161±4.5 | 62.8±6.3 | 173±4.7 | 66.7±4.0 | 181±3.2 | 77.6±5.7 | 193±2.8 | 87.9±6.6 |
| G14-15 | 153±3.2 | 76.9±3.8 | 164±4.2 | 91.9±4.1 | 173±2.9 | 100.6±4.4 | 183±3.3 | 114.2±5.5 |

Table 5. HR ($b \cdot min^{-1}$) and $PO_{approx}$ (W) produced at 4 different ratings of perceived exertion by children aged11 – 15 years (n = 48) during stepping. Values are M ± SEM. B = boys, G = Girls.

Discussion

Our observations from Phase 1 that the children's effort ratings increased in parallel with their HRs, regardless of gender or age group, endorse the validity (in estimation mode) of this new pictorial version of the original child-specific perceived exertion scale. These findings support those of the initial validation study of the CERT scale during incremental stepping (in children aged 8 to 9 years) by Williams et al. (1994), and those of Lamb (1995) using the CERT scale, and Ward and Bar-Or (1990) using the Borg RPE scale amongst 8 to 15 year-olds during cycling ergometry.

Age-related differences in the children's PCERT ratings were not apparent for the two lightest stepping intensities, but for levels 3 and 4 (in which step height and rate were increased) the older children provided lower ratings. As the same stepping protocol was used for all participants, these differences might be related to maturational differences in

stature, resulting in a more efficient hip angle in the older children at the larger step heights. Furthermore, since relative power output is likely to increase with age, a given step height and rate would equate to a higher percentage of peak power in the younger children compared to the older children.

The above effect of age group on PCERT values is reflected somewhat in the strength of the Pearson correlation coefficients at each levels. The weakest coefficients were found in younger children (aged 11 to 12), particularly amongst the boys. These findings substantiate the results of Bar-Or (1977) who reported that younger children (aged 10 to 12) were less accurate - based on correlation coefficient size - than older children (aged 13 to 14) at estimating their exercising effort when using the Borg RPE scale. Conversely, our findings contrast with those of Gillach et al (1989) who found no gender differences in validity correlations involving RPE ratings, and Lamb (1995) who reported higher correlations among boys than girls for both the CERT and RPE scales. Differences in the calculation of correlation coefficients between these studies (i.e. using pooled or individual data) should be acknowledged as a confounding factor when comparing these findings.

It is important to consider the impact of certain methodological issues in the present study. Firstly, during the estimation phase (Phase 1) the incremental nature of the stepping protocol and the visible nature of the manipulation of exercise intensity might have influenced children's effort ratings. Indeed, Lamb and Eston (1997) suggest that most of our understanding of children's ability to rate the intensity of exercise has come from measuring responses to a situation in which they are aware through visual cues, that the exercise is getting progressively more demanding. The extent of the range of the perceptual response of children in this study should also be acknowledged. Children's responses during Phase 1 were, to some extent, confined to the mid-portion of the response range (mean PCERT values of 3.1 - 8.8). In this respect there is a need for further study to assess the scale's validity across its full response range.

Secondly, the use of a discontinuous protocol in both phases of the present study, as compared to a continuous protocol in the majority of previous studies, may have helped the children to distinguish between exercise levels by reducing the influence of fatigue on their effort perceptions (Lamb et al., 1997). Thirdly, it was noted that the children's level

of exercise motivation (defined as a willingness to participate, specifically in relation to exercise at the higher intensities) appeared greater during Phase 1 than in Phase 2. In particular, older children appeared less enthusiastic to exercise at a harder intensity, that is, to produce level 9, when they were required to regulate their own efforts, compared to when the experimenter controlled their exercise intensity. Finally, it is acknowledged that differences in the format and presentation of the PCERT with alternative scales of perceived exertion, such as the CERT, CALER and RPE scales, make direct comparisons with previous studies problematic. However, assessing the relationship between perceived and objective effort, as in the present study, has been commonplace.

It has been argued that direct comparison of data gathered during estimation trials with production trial data is inappropriate (Eston and Lamb, 2000; Lamb and Eston, 1997). We have therefore not compared data from the two phases. In Phase 2 the children were able to discriminate between the four different prescribed effort ratings by manipulating their exercise intensity. This self-regulation of exercise intensity elicited corresponding changes in HR. Specifically, the lower the effort rating prescription, the lower the HR and $PO_{approx}$ produced, and vice versa. These findings support those of Lamb (1996) and Eston et al. (1994; 2000). These studies reported that children were able, to some extent, to produce subjective effort ratings that yielded changes in HR and power output during cycle ergometry. Whereas Williams et al. (1994) suggested that younger children, particularly those aged 6 to 9 years, were generally unable to use the CERT scale to accurately produce two 'moderate' levels of exercise intensity.

In the present study the produced HRs ranged from 151 to 183 $b \cdot min^{-1}$ across the four prescribed effort ratings. This HR range is similar to that reported in previous studies that have used the Borg RPE scale (Ward et al., 1991; Williams et al., 1991). Boys (aged 14 to 15) consistently selected the highest $PO_{approx}$ and produced the lowest exercising HRs at each of the 4 PCERT levels. In contrast, girls (aged 11 to 12) produced a consistently higher HR and a lower $PO_{approx}$ at each prescribed effort rating. The younger boys produced a higher HR and lower $PO_{approx}$ than the older girls. The older girls achieved higher HR and lower $PO_{approx}$ than boys of the same age at each prescribed effort level. These findings are consistent with the maturational and gender differences previously reported. Williams et al. (1991) and Lamb (1996) observed that boys produced higher

power outputs than girls across several prescribed CERT and RPE levels during cycle ergometry.

As the majority of children's effort perception studies have been confined to laboratory conditions, the effectiveness of existing, modified or new scales within the field or practical setting has yet to be adequately explored. Although the potential value of children's ratings of perceived exertion in terms of promoting physical activity within physical education has been recognised (Eston, 1984; Green and Lamb 2000; Penney and Yelling, 2001) this has yet to be realised fully within the physical education profession in the U.K. Future research should seek to explore the potential of the PCERT and other child-specific effort rating scales within the practical context of physical education and examine the ways in which such scales represent a potential method to enhance the teaching and learning of issues associated with the promotion of physical activity.

Conclusion

In this study children's ratings of effort using the PCERT reflected well the changing physiological demands of the exercise tasks presented. Each group provided higher PCERT ratings with corresponding increases in exercise intensity. The children also appeared to be able to use their effort perception to increase or decrease the intensity of their exercising effort to match a range of prescribed effort levels. These findings confirm the potential of pictorial child-specific scales for use with children and suggest that further research using such scales in applied activity and physical education contexts is desirable.

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## Appendix D Physical Education Teacher Questionnaire

Thank you for participating to date in the collaborative research between De Montfort University and your school. The following questionnaire asks you about particular aspects of your teaching background and qualifications, your current teaching responsibilities and the provision of PE at your school. Your responses will complement and provide an important point of reference for reporting the data previously gathered in the course of the research conducted at your school.

Respondent anonymity shall be maintained at all times and all answers shall remain confidential. If you have any queries arising from the questions below, or any other aspect of the research project, please contact me at the address provided at the end of the Section 2.

Thank you for your time.

### Section A Your background

Please complete the questions below relating to your initial teacher training, teaching background and current teaching responsibilities.

i) At which institution did you complete your initial teacher training?

_____

ii) When did you complete this training?

_____

iii) Please specify what your teaching qualification is, (e.g., B.Ed physical education, PGCE physical education specialist ) and state your subjects specialism (s) (e.g., physical education and mathematics.

_____

_____

iv) Please provide details of the ways in which, if any, your initial teacher training addressed issues of health related fitness/exercise.

_____

_____

_____

v) How many years have you been teaching?

_____

vi) Have you been teaching physical education throughout this time?

Yes ☐ No ☐

If no, please explain what breaks you have had from teaching physical education.

_____

_____

vii) Please provide details of the types of school you have taught in previously (e.g. secondary, primary, middle, private), the number of years you have taught in these particular schools and details of your main teaching responsibilities (e.g. exam courses, NCPE (include specific activity areas).

| Type of school | Years teaching | Teaching responsibilities |
|---|---|---|
| ---------- | ---------- | ---------- |
| ---------- | ---------- | ---------- |
| ---------- | ---------- | ---------- |
| ---------- | ---------- | ---------- |

**Section B Your current role, responsibilities and expertise**

i) Please provide details of your main teaching responsibilities at your current school.

_____

_____

_____

ii) Currently, what do you regard as your particular specialism (s) in physical education teaching?

_____

_____

_____

iii) Please rate your knowledge, understanding and expertise in relation to the planning and delivery of Health-Related Fitness/Exercise

Tick one box only

| Limited | A little | Satisfactory | Good | Excellent |
|---|---|---|---|---|
| ☐ | ☐ | ☐ | ☐ | ☐ |

iv) Please indicate any INSET or continued professional development courses you have attended in the last 3 years or further PE qualifications you have obtained.

Please tick all boxes that apply

Activity Areas

Dance ☐ Gymnastics ☐ Athletics ☐

Swimming ☐ Outdoor and adventurous activities ☐

Games ☐

- Invasion ☐
- Striking / Fielding ☐
- Net / Wall ☐

Health-Related Exercise/Fitness ☐

Assessment, Recording & Reporting ☐

Curriculum Planning ☐

First Aid ☐

Health and Safety ☐

Information and Communication Technology ☐

Sport specific teaching or coaching courses (e.g., governing body awards) ☐

Please provide details of specific awards

_____

_____

_____

_____

Generic coaching courses (e.g., NCF Coaching Children) ☐

Please provide details of specific awards

_____

_____

_____

Other INSET courses / continued professional development ☐

Please provide further details

_____

_____

_____

v) What do you regard as any gaps/weaknesses in your PE subject knowledge/skills, and therefore priorities for continued professional development?

Please list in order of priority:

(i) ---------- (ii) ----------

(iii) ---------- (iv) ----------

**Thank you for completing this questionnaire. I will collect the questionnaire from you at school.**

**Address for correspondence**

Martin Yelling
School of PE, Sport and Leisure
De Montfort University
37 Lansdowne Road
BEDFORD
MK20 2BZ
Telephone: 01234 793454
Email: myelling@dmu.ac.uk

Appendix E: Phase 1 : Letters to schools

Mr Martin Yelling
School of Physical Education, Sport and Leisure
De Montfort University
Bedford
Tel: 01234 793378

Dear head teacher

**Re: Research project exploring children's physical activity in physical education lessons**

The positive health benefits of physical activity for adults has been universally acknowledged. The situation regarding physical activity participation by children is less well understood. What is clear is that existing research evidence provides a strong justification for the need to promote physical activity in young people. Schools, and physical education lessons have been identified as effective settings for promoting activity.

De Montfort University Department of Physical Education is currently investigating the amount of time pupils spend participating in physical activity within their school based physical education lessons. It is hoped that some local schools will assist in the research by allowing Martin Yelling to observe and collect physical activity data during selected physical education lessons. Briefly, this would involve Martin yelling coming into school to (i) collect some descriptive details of pupils in year 7, (ii) to video some physical education lessons, (iii) to record the heart rates of some pupils in these lessons. (using a lightweight, non obtrusive method).

It is hoped that the findings from this research can highlight the contribution that physical education makes to the attainment of nationally recognised targets 9Health Education Authority) for physical activity participation in young people.

Can you please return the slip below if your school is interested in participating in the research.

I look forward to hearing from you. Please feel free to contact me on the number above if you require additional information.

With thanks

Yours faithfully,

Martin Yelling

Appendix E: Phase 1: Informed consent with head teachers and physical education teachers

.....(school name)

are willing to participate in the study into the physical activity levels of young people in physical education.

I have read the outline of the study and understand what involvement entails.

The physical education department have also read and understand the information above and grant permission for Martin Yelling to recruit pupils for the research and to observe and video physical education lessons.

We understand that parental and pupil consent will subsequently be obtained from all pupils involved.

Signed ..... (head teacher)

Signed ..... (physical education teacher)

Appendix E: Phase 1 : Parental and child consent


Mr Martin Yelling
School of Physical Education
De Montfort University
Bedford
Tel: 01234 793378

Dear parents/guardian

**Re: Physical activity in Physical education at SCHOOL NAME**

The positive health benefits of physical activity participation in adults is well established. The situation for children is less clear. What is clear is that existing research provides justification for a need to promote participation in physical activity by children and young people. The De Montfort University School of physical education is currently investigating the amount of time pupils experience physical activity in their school PE lessons.

The enclosed form is for you to sign if you have no objections to your daughter participating in the research at SCHOOL NAME conducted by Mr Martin Yelling. The form outlines the research procedures that will take place at school. These involve recording measurements of height and weight and pupils' physical activity levels (using heart rate) during PE lessons.

Can you please ask your daughter to read the information also and complete the form below to indicate their willingness to participate. PE TEACHERS NAME has met with year seven girls and explained the research. If your daughter would like to participate and you are willing, please return both forms to PE TEACHERS NAME the week after half term. (w.b. 3rd Nov).

The research at SCHOOL NAME represents an exciting opportunity to highlight the contribution that school PE lessons make towards nationally recognised targets for physical activity participation in young people.

Thank you for your co-operation.

Mr Martin Yelling

Appendix E: Phase 1 Parental and child consent

DE MONTFORT
UNIVERSITY
BEDFORD

## Children's Physical Activity Levels in Physical Education

### Informed consent

1) **Purpose**: This research aims to explore the amount of time pupils spend exercising
2) **Procedures**:
    1. Pupils will have their age, height and weight recorded.
    2. Pupils will have their resting heart rate recorded. This will be done upon waking in the morning using a heart rate monitor. (Worn as a small chest strap and wristwatch)
    3. Pupils will have their maximal heart recorded during a simple running exercise test performed at school.
    4. Some pupils will be asked to wear a heart rate monitor in their physical education lessons.
    5. *Some PE lessons will be video-recorded.*

3) **Queries**: Martin Yelling will be pleased to answer any questions that you might have.
4) **Withdrawal**: Pupils are free to withdraw from the research at any time
5) **Confidentiality**: Pupils identity will be strictly confidential and all data will be anonymous.

---

I ..... The parent/guardian of .....
Have read and understood the information above and agree for my daughter to take part in the research. As far as I am aware, my daughter does not have any infirmity that would be affected by the procedures.

Signed ..... Date .....

Child assent

I ..... understand that my parents have given permission for me to participate in a study about physical activity in PE lessons. I want to do it too. My involvement is voluntary and I know I can withdraw at any time.

Signed ..... Date.....

Appendix E : Phase 3: Scale Administration Principles and Procedures

" You are going to perform a simple exercise task involving stepping up and down a bench. The effort it takes you to do this might change from time to time ".
" You will be wearing a heart rate monitor and asked to say how easy or how hard the exercise feels to you at different times during the exercise task ".
" The stepping task will have 5 levels and each level will last for 3 minutes. You will have a 2 minute rest between levels. "

1) Define perceived exertion : Introduce the concept

" Perceived exertion can be defined as a method to determine the intensity of effort, stress or discomfort, or how you feel during exercise "
" Imagine you are walking up a hill that is getting steadily steeper. As you walk up the hill your body experiences changes in sensation that provides information that your effort is increasing "
" For example: you may get hot and start to sweat, your legs and arms may ache, your breathing rate will increase etc..." (refer to both respiratory –metabolic and peripheral signals)
" It is these changes/responses I would like you think about when exercising "

2) Anchor the perceptual range

"The scale you have been given describes different efforts"
Provide the subject with an understanding of the range of sensations that correspond to the scale. i.e what is meant by 1, (very, very easy) and 10, (so hard I'm going to stop).

Anchor the scale by definition and memory.
" the number 1 might be very little movement, standing or walking slowly eg, with friends at break-time "
" the number 10 is associated with the greatest effort imaginable, eg, imagine your house is at the top of the hill you were walking up earlier, as you get closer to the top, and the hill gets steeper, you see your house is on fire and so start to run, but you have to stop and let it burn because you cannot run any faster "

3) Explain the nature and use of the scale

" During the exercise period I will show you the scale and ask you to use the scale to tell me how hard or easy the exercise feels ".
" remember, each number on the scale represents a different sensation of how hard the exercise feels "
" When deciding on your answer I would like you to use the numbers, words and pictures contained on the scale, but, when you answer please say a number which best describes your feeling of the exercise at that moment " " For example, if the exercise is 'starting to get hard', you will say '5' ".

4) Correctness of perceptual responses

" There are no 'right' or 'wrong' answers to how you feel during the exercise, just say how you are feeling during the exercise "

5) Answer any questions

Appendix E: Phase 3 Informed consent with parents and pupils

DE MONTFORT
UNIVERSITY
BEDFORD

Martin Yelling
Faculty of health and Community Studies
De Montfort University, Bedford
Tel: 01234 793454. Email: myelling@dmu.ac.uk

Children's Perceptions of Exercise Intensity

| | |
|---|---|
| 1) Purpose | This research will look at children's perceptions of effort, or how they feel whilst exercising. |
| 2) Procedures | Children will have some simple body measurements recorded. These are age, height and weight.<br>Children will have their resting heart rate and peak heart rate measured.<br>On two separate days the children will perform two simple stepping tasks up and down a bench. The tasks will vary in intensity from easy to hard and will last for about 20 minutes each. The tasks will require the children to answer some simple questions about how they feel whilst exercising.<br>Children will be required to wear a small heart rate monitor around their chest whilst exercising.<br>PE kit can be worn for all tasks. |
| 3) Queries | Martin Yelling will be pleased to answer any questions that you may have |
| 4) Withdrawal | Children are free to withdraw consent and stop participating at any time |
| 5) Confidentiality | Children's identity will be confidential and all data will be anonymous. |

---

| | |
|---|---|
| Parental consent | I ..... have read and understood the information on this form and agree for son/ daughter to take part in the study. They do not have any infirmity that may be affected by the procedures.<br><br>Signed ..... Date ..... |
| Child consent | I ..... understand that my parents have given permission for me to participate and I want to. I know I can stop at any time.<br><br>Signed ..... Date ..... |

Appendix E: Phase 4. Example letter to schools


HEADTEACHER
SCHOOL ADDRESS

Dear Head teacher

**Re: Children's Perceptions of Effort During Physical Education**

De Montfort University, Bedford, is conducting a research project investigating children's perceptions of effort during physical education and how this can promote physical activity levels within PE lessons. The implications of this for teaching, learning, curricular design and delivery during PE and within the National Curriculum for PE specifically, will be explored. It is particularly timely to address these issues as guidelines for young people's physical activity levels have recently been established and the revised National Curriculum is due to be implemented in January 2000. Schools and PE lessons have been acknowledged as playing a key role in contributing towards these physical activity recommendations however the contribution that PE currently makes or can make in the future has yet to be established.

As you are aware the PE department and pupils from SCHOOL NAME have been previously involved with research conducted by De Montfort University. Mr Alan Adamson has expressed a willingness and enthusiasm to continue involvement during the 1999/2000 academic year. I would very much like to continue the development of stronger links between SCHOOL NAME and De Montfort University. The proposed research will involve one female and one male year 10 PE class. Preliminary procedures are scheduled to be conducted during the second half of the Autumn term 1999 and further work throughout the Spring term. I attach a recent letter to PE TEACHER outlining the proposed work and detailing procedures.

I hope that you will support the involvement of SCHOOL NAME in the project. It provides a valuable opportunity to develop links between local schools and higher education institutions. The pupils will be presented with the opportunity to learn new exercise skills that might promote their participation in further physical activity for health benefits. Staff and researchers will be able to share teaching ideas and approaches and be reflective and evaluative in developing teaching practice.

Please do not hesitate to contact me if you wish to discuss the project further.

Yours sincerely

Martin Yelling

Martin Yelling
School of PE, Sport and Leisure
De Montfort University
Tel: 01234 793454 / 0780 1023 984 / email myelling@dmu.ac.uk

## Appendix E: Phase 4 Head Teacher Informed Consent Agreement

**Project Title:** **Children's Perceptions of Effort During Physical Education**

**Researcher :** Mr Martin Yelling,
School of PE, Sport and Leisure,
De Montfort University, Bedford

**Headteacher :** HEADTEACHER NAME

**School :** SCHOOL NAME

**Study Background**

The physical education (PE) department at SCHOOL NAME has been working in collaboration with Martin Yelling since November 1999 investigating the ways in which pupils' perceive exercise intensity during PE lessons. The importance of this concept in relation to pupil understanding of, and participation in, appropriate physical activity and in relation to PE teacher curricular planning and delivery has also been explored. Thank you for agreeing to your schools participation.

**Interview Purpose**

The interview seeks to establish your views and opinions in relation to PE and school sport and physical activity promotion at SCHOOL NAME and in schools in general.

**Interview Details**

All interview data, including audio recordings and written notes, will remain confidential at all times. Participant coding will be used to maintain confidentiality and participants' identity will remain anonymous in any subsequent publication of the findings from this study.

I understand that my participation in the interview is voluntary and that I am free to withdraw without prejudice at any time. A copy of this consent form will be given to me.

Head teachers signature .....

Researchers signature .....

## Appendix E: Phase 4. PE Teacher Informed Consent Agreement

**Project Title:** **Children's Perceptions of Effort During Physical Education**

**Researcher :** Mr Martin Yelling,
School of PE, Sport and Leisure,
De Montfort University, Bedford

**PE Teacher :** TEACHER NAME

**School :** SCHOOL NAME

**Study Details** I have been informed that this study will explore the ability of young people to rate and regulate their exercising efforts during physical education lessons and the implications of this in PE curricula design and delivery. I confirm that I have previously been provided with full written details of the procedures that will be employed during the study and understand the implications of my involvement. I have read and understand these procedures and the summary presented below.

I understand that my involvement in the study will include;

a) Martin Yelling being present in a number of games lessons I teach
b) a number of games lessons I teach being video recorded
c) me wearing a wireless microphone that records my verbal comments during these lessons
d) me collaborating with Martin Yelling to plan and deliver a series of games lessons using the Pictorial Children's Effort Rating Table (PCERT)
e) my participation in an informal interview which will take place after the lesson data collection period has been completed.

All data collected by Martin Yelling, including video/audio recordings, field notes and interview responses will remain confidential. Participant coding will be used to maintain confidentiality and participants' identity will remain anonymous in any subsequent publication of the findings from this study.

I understand that my participation in the study is voluntary and that I am free to withdraw without prejudice at any time. A copy of this consent form will be given to me.

Participants signature .....

Researchers signature .....

Appendix E: Phase 4. Parental and child consent

## Informed Parental Consent

Child's Name..... School.....

I have read the information provided and give my permission for ..... to participate in the study. My son/daughter has agreed to participate and has signed the child assent form below. I understand the nature of the study and know of no medical reason why he/she may not participate. I have completed the pre-data collection medical questionnaire.

Signed.....(Parent/Guardian) Date.....

## Informed Child Consent

I, ....., understand that my parents/guardian have given permission for me to take part in a research project about exercise during PE lessons under the direction of Mr Martin Yelling.

I know that this will involve me taking part in a simple exercise task to measure my maximum heart rate and that I will have my resting heart rate measured. I know I will take part in some sessions to learn about how easy or how hard I am exercising using an effort rating scale. I will also wear a heart rate monitor during some of my lessons and be asked how easy or hard I am exercising and try to control how easy or hard I am exercising.

I know that all this will take place at school and I am taking part because I want to be involved.

Signed ..... Date.....

Appendix F: Establishing observer reliability in Phase 2

Observer training was undertaken following the five stages identified by van der Mars (1989a) as Orientation to the system, learning the categories, using the coding form correctly, initial coding practice, live observation practice. During observation if two or more types of behaviour occurred during an interval, the behaviour consuming the greater interval portion was recorded. If two types of behaviour occurred simultaneously for the majority of an interval both behaviours were coded. Intra-observer reliability checks were completed using the scored interval (S-I) method described by van der Mars (1989a) and calculated by dividing the number of agreements by the number of agreements plus the number of disagreements and multiplying the result by 100. Reliability percentages ranged from 81% to 91% for five of the behaviours (changing time, warming up, skill/drill practise, game playing, knowledge and instruction) of the target behaviours, thus surpassing the 80% level of agreements suggested by van der Mars (1989a). For one the target categories (organisation) the number of scored intervals was between 6 and 10. Recognising the limitation of the S-I method when few behaviours are recorded, the resultant reliability of 71% was accepted in agreement with Metzler (1983) who has suggested that with lower numbers of scored intervals an acceptable agreement is level is 70%.

Appendix G: Pilot Study.

A single school that had agreed to participate in the research was used to trial procedures for Phase 4. From this school one year seven girls physical education class was chosen by the physical education teacher to act as the 'pilot study' class. The female physical education teacher, the pupils and their parents all gave their written informed consent prior to assisting with the research. Nine (only nine heart rate monitors were available) girls were random selected from the class to;

(i) wear heart rate monitors to monitor physical activity levels
(ii) participate in 'scale training sessions'
(iii) provide PCERT ratings
(iv) attempt to regulate their physical activity levels during football at PCERT 2, 4 and 6.

The unit of work observed comprised 6 lessons of girls football taught by the girls physical education teacher. All lessons took place on the school playing field. During the lessons the main procedures that were piloted involved:

- The video-recording of lessons: positioning and operation of video.
- The most effective distribution and management of heart rate monitors
- The most effective method of asking pupils to provide PCERT ratings during these lessons
- How to effectively and efficiently record the PCERT ratings and the details of the lessons activity in which the ratings occurred.

Prior to the lessons the nine girls participated in two scale training lessons to familiarise themselves with the PCERT. During these sessions we practised how to respond to the scale and the pupils were instrumental in providing feedback regarding 'what worked and what didn't'. Subsequently, in the six football lessons the pupils were able to draw upon this knowledge to provide PCERT ratings of their physical activity levels.

After the completion of the 'rating' lessons the girls participated in two trial 'regulation' lessons. During the 'regulation' lessons the main procedures that were piloted included:

- How and when in the different lessons approaches the teacher asked for particular activity levels to be 'regulated'
- The duration of each lesson aspect during which the girls were required to regulate activity levels.
- The girls responses to 'self-regulation'
- The analysis of the 'self-regulated' activity data generated in the lessons.

These football lessons took place during the school lunch hour. The first lesson followed a 'traditional' format to the teaching of games, and during the second a TGfU model was employed. The physical education teacher planned and taught both lessons. During the lessons the pupils wore heart rate monitors to record their activity levels during the lessons elements where they were asked to 'self-regulate' their physical activity to match either PCERT2, 4 or 6. This data was subsequently used to pilot analysis of the girls ability to control their activity levels within these games contexts.

Discussions with both the physical education teacher and the pupils after these procedures had taken place shaped the design and implementation of the subsequent research in Phase 4 at Greensands and Forestside..

Appendix H: Information to parents, pupils and teachers

Martin Yelling
School of PE, Sport & Leisure
De Montfort University
Tel: 01234 793454 / email myelling@dmu.ac.uk

## Young People's Perceptions of Effort During Physical Education Lessons

**Why?**
De Montfort University, Bedford, is currently investigating children's perceptions of effort during physical education and how this concept might promote physical activity levels within PE lessons. It is timely to address this as the benefits of participation in regular physical activity by children have been acknowledged, and guidelines for young people's physical activity levels have been recently established by the Health Education Authority. Schools, and the PE lessons they provide, have been recognised as important in contributing towards these physical activity recommendations. This has implications for the delivery of the revised National Curriculum for Physical Education due for implementation in schools in January 2000.

**Where and When?**
SCHOOL NAME has agreed to be involved in the study and your son/daughter has been asked to participate by their PE teacher and the principal researcher, Mr Martin Yelling. The project is scheduled for the second half of the autumn term.

**How?**
The project has three phases.

Firstly, your son/daughter will be asked to complete a simple exercise task to measure their maximum heart rate. They will also have their resting heart rate measured. Both of these tasks will take place at school.
Secondly, your son/daughter will be asked to participate in a short learning program about how to use a specially developed effort rating scale. This will consist of 2 training sessions that will take place at school.
Thirdly, the heart rate responses of your son/daughter will be recorded during some of their PE lessons. Their heart rates will be measured using a simple non-obtrusive heart rate monitor. A heart rate monitor consists of a chest strap and wristwatch.
During these PE lessons you son/daughter will be asked to rate the intensity of their effort using the effort rating scale. They will be asked to say how hard the activity they are participating in 'feels' to them. They will also be asked to try to regulate or control their own physical activity level during different PE activities in subsequent lessons.
Each of the PE lessons used for study will be videotaped.

Your son/daughter will also be asked to participate in a short informal discussion group with their friends about their experiences within PE. This will be conducted by Mr Martin Yelling and held on school premises.
To maintain confidentiality of records all participants in the study will anonymous and only Mr Martin Yelling will have access to the information collected.

Please sign the attached form giving parental consent for your son/daughter to participate in the study. Please return the signed consent form only to your son/daughters PE teacher at school.
Thank you very much for your co-operation. Please feel free to contact me if you have any questions.

Appendix H: Information to pupils, parents and teachers

Martin Yelling
School of PE, Sport and Leisure
De Montfort University
Bedford
Tel: 01234 793454 / email: myelling@dmu.ac.uk

# Children's Perceptions of Effort During Physical Education

Dear Participant,

Thank you very much for agreeing to take part in a study conducted by De Montfort University that is happening in your school shortly.

How do you feel during exercise in your PE lessons?

Can you describe this feeling using a specially developed scale?

Can you control how hard or how easy you exercise during PE lessons?

These are questions we will be trying to answer.

But first, what will **you** be asked to do?

I will need to measure how fast your heart can beat in one minute. This is called your 'peak heart rate'. To measure your peak heart rate you will be asked to complete a simple running task that can get quite hard.

I also need to measure your 'resting heart rate', that is how many times your heart beats in one minute when you are resting, e.g., lying down.

During both of these tasks you will be asked to wear a heart rate monitor to record the responses of your heart. This is a small transmitter worn around your chest and a receiver worn as a wristwatch. Both of these tasks will take place at school. You will need to wear your PE kit for the running task and bring a magazine or book to read for the resting task. Your PE teacher will tell you when and where these tasks will take place.

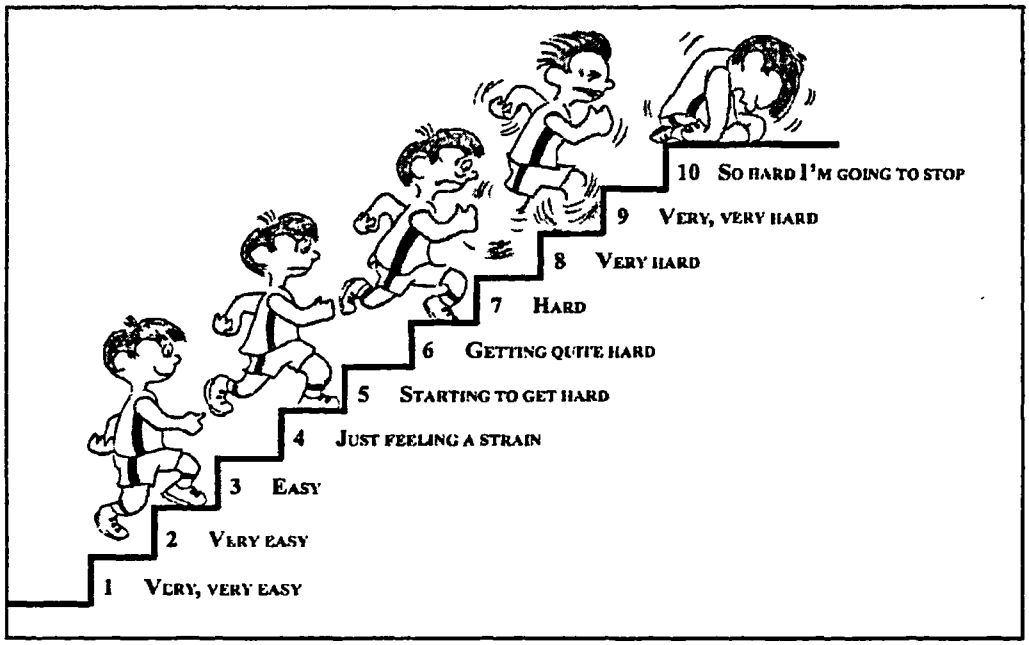
You will also be taught how to use an 'Effort Rating Scale'. This helps you describe how you are feeling during exercise and physical activity. The scale you will be using is called the 'Pictorial Children's Effort Rating Table' or 'PCERT.' for short. A copy of the PCERT is shown on the back of this page. You will be taught how to use this scale in a series of practical sessions that will take place at school. You will need your PE kit and your PE teacher will tell you when and where these sessions will take place.

After Christmas during some of your PE lessons you will be asked to say how hard or how easy the different activities 'feel' to you. This will be done using the PCERT. at various points throughout your PE lessons. At a later stage you will be asked to try to

control or pace your own exercise levels during different activities within your PE lessons using the PCERT.

Some of your PE lessons will be videotaped. You will also be asked to complete a short questionnaire about your PE lessons and how you feel when you are doing them.

Here is a copy of the Pictorial Children's Effort Rating Table (PCERT) you will be learning about and using during your PE lessons.




You will be using this scale to say how easy or how hard exercise feels to you.

Please try not to lose this copy of the scale as you will need to look at during the research.

If you have any questions....Just ask!!

Thanks

Martin Yelling

Appendix I: Activity and medical questionnaire

School of PE, Sport & Leisure
Physiology of Exercise
Alexander Sports Centre
Sidney Road
BEDFORD
MK40 2BQ
01234 793336

# PHYSICAL ACTIVITY AND MEDICAL QUESTIONNAIRE

**ALL ANSWERS ARE STRICTLY CONFIDENTIAL**

Name ..... Sex ..... D.O.B ..... Age .....

Please answer the following questions by putting circle around the appropriate response or filling in the blank.

1. How would you describe your current level of physical activity?

   No activity / Very little activity / Some activity / Quite active / Highly active

2. How many times during the previous week did you participate in physical activity? **(not including PE lessons)**

   Zero / One / Two / Three / Four / Five / Six / Seven / More than seven times

3. During the previous week what was the average amount of time spent participating each time?

   Less than 15 minutes / 15 to 30 minutes / 30 to 45 minutes / 45 to 60 minutes / 60 to 1¼ hours / 1¼ hours to 1½ hours / more than 1½ hours

4. What type of activities did you participate in? Circle **each** activity you participate in.

   Team sports or games (e.g. basketball, netball) / Individual sports or games (e.g. cycling, swimming) Leisure activities (e.g. aerobics, fitness, jogging) / Recreational activity (e.g. rollerblading, skating,) / Other activity (please provide details) .....

5. What was the intensity of the activity, how did you feel when participating?

   Not out of breath, sweaty or tired / a little out of breath, sweaty or tired / Quite out of breath, sweaty or tired / Very out of breath, sweaty or tired

6. How would you describe your present level of fitness?

   Unfit / Somewhat fit / Quite fit / Very fit / Extremely fit

Appendix I: Activity and medical questionnaire

School of PE, Sport & Leisure
Physiology of Exercise
Alexander Sports Centre
Sidney Road
BEDFORD
MK40 2BQ
01234 793336

## PHYSICAL ACTIVITY AND MEDICAL QUESTIONNAIRE

7. How often do you participate in your **school PE lessons?**

   Never / Sometimes / Regularly / All the time

8. Do you currently smoke? No / Occasionally / Regularly

9. Have you ever smoked? Yes / No

10. Are you presently taking any form of medication? Yes / No

    Details .....

11. As far as you are aware, do you or have you ever suffered from:

| | | | |
|---|---|---|---|
| Diabetes | Yes / No | Asthma | Yes / No |
| Epilepsy | Yes / No | Hay fever | Yes / No |
| Any form of heart complaint | Yes / No | Other | Yes / No |

    If 'other' please provide details .....

12. Is there a history of heart disease in your family? Yes / No

13. Are you currently, or have you ever suffered from any form of muscular or joint injury Yes / No

    If 'yes' please provide details .....

    .....

Thank you very much for your co –operation.

Appendix J: Examples of scale training sessions

**Forestside School Scale Familiarisation. 6.12.99**

**Age: Year 7, (11-12, KS3) Gender: Male**

**Activity Area: Football**

**Session 1**

1) Introduction Why are we here, what are we doing?
   - Define the concept of perceived exertion.
     Perceived exertion is a method to determine the intensity of effort, stress, or discomfort that is felt during exercise, or 'how you feel' when you exercise.

     "Think about walking up a long hill that gets steeper and steeper towards the top. As you walk up the hill you're your body experiences different feelings that tell you your effort is increasing"
     What are these feelings? (hot, sweaty, muscles ache, breath more etc).
     How do you know when it's getting harder?

     It is these changes we will looking at during PE, and these feelings that I would like you to think about when we are doing different activities.

2) Anchor the perceptual range: Provide participants with a clear understanding of the range of sensations that correspond to the PCERT
   - By memory: During your PE lessons try to remember an activity that felt physically very easy. (**Distinguish between physical effort and skill based effort, use sensations described previously*). Provide examples of these? E.g., shooting in netball. What number of the scale best describes this? Now, try to recall a particular activity during your PE lessons when the effort was hardest you have ever experienced. E.g., during a running/swimming race or during cross country. What number of the scale best describes these feelings?
   - By experience. You are going to do a range of different football type activities that have been planned to give you the opportunity to experience how easy or how hard exercise feels to you. We might do some activities that feel very easy, and some that feel very hard and some that are in between.

3) Explain the nature and use of the scale
   - Whilst you are doing these different activities I will show you the scale and ask you how easy or how hard they feel. Remember, this is how physically hard the activities feel.
   - Look at the scale. Each number, from 1 to 10, on the scale represents a different sensation of how easy or how hard exercise feels to you . Number 7 should be reported when the activity feels harder than number 6, but not as hard as number 8. Also, the pictures and words represent different feelings of how hard the exercise feels. For example, You might be grimacing and moving pretty quick if

you are exercising here on the scale. Very, very hard is a harder intensity than getting quite hard, which is in turn harder than just feeling a strain. I will show you the scale and ask you say a number during the different activities we do. Use the pictures and the words to decide on a number that best describes your feeling of the exercise at a particular moment.

4) Explain differentiated ratings.
   - When you provide a response remember to think about how hard the activity feels in your arms, legs, chest, etc. Use your whole body experience of the activity when saying how it feels.

5) Correctness of perceptual response.

   - There are no 'right or wrong' answers. People experience a range of different feelings during exercise, an activity that might be hard for one person might be very hard for another, yet easy for someone else. It is really important that you say how the exercise feels to you, and do not worry about what the other people in the group say.

6) Answer any questions.

7) Anchor the perceptual range through practical experience

i) Pass and go in a circle. 6 players form a circle. A pass must be made to another player in the circle, after which the passing player must run around the outside of the circle and return to their original position. The player who receives the pass repeats this. Always pass to a player, not a space.

ii) Grid passing in 3's. a) No movement in triangle. b) With movement; 3 players stand on the corners of a grid. Player alongside empty corner sends the ball to this spare corner. Other player alongside empty corner runs to this corner and receives the ball. Repeat.

iii) Dribble relays in 3's

iv) Breakaway and score in 2 x groups of 6. 4 teams of 3. 2 teams play on half a pitch. All players dribbling in centre circle. On command 1 team has to break and score in a goal. Other players become defenders and have to stop there ball and chase attackers, get there ball and return it to the centre circle.

**Children's Perceptions of Effort During Physical Education**

**Forestside School Scale Familiarisation. 13.12.99**

**Age: Year 7, (11-12, KS3) Gender: Male**

Activity Area: Football

**Session 2**

1) Revision of principles of PCERT.

What is the scale?
How do you use it?
What feelings do you associate with different numbers?

2) Practical Session

- **Shadow Dribbling.** Try to loose your partner.

- In grids 1 V 1 **'seek the cone'.** I point each tie you hit the cone. Possession changes if ball goes out. Change after 90s.

- In groups of 6, **'Pass the lines'.** Three players stand opposite partners. 3 balls. A's have to pass to B, who returns the ball and sprints to the next passer, repeat. At the end of the line sprint back to start of the line. **Progression:** After A's have passed and received it back, they then have to dribble to the opposite cone and turn ready to send the ball. Change roles.

- **'Attack or defend'.** (on a whole pitch). Teams of 6. Line 6 balls up on the half way line. Players race to the ball from their respective 18 yrd box lines. Collect a ball and try to score in opponents goals. If you get a ball you become an attacker, if you do not, you become a defender. Stop opponents from scoring by dribbling ball back across half way line. REPEAT.

- **Ball tapping and pass.** In pairs. A's ball tap whilst B's run to a space to receive the ball. A's pass to B's who ball tap whilst A's run to a space up the pitch, B's pass and run to a space whilst A's receive and ball tap etc.. Work up the whole pitch. Shoot to finish.

**Children's Perceptions of Effort During Physical Education**

**Forestside Middle School Scale Familiarisation. 10.12.99**

**Age: Year 7, (11-12, KS3) Gender: Female**

**Activity Area: Netball**

**Session 1**

8) Introduction Why are we here, what are we doing?

- HRM : putting them on, turning them on and off. Meting at the start and finish of lessons

- Define the concept of perceived exertion.
  Perceived exertion is a method to determine the intensity of effort, stress, or discomfort that is felt during exercise, or 'how you feel' when you exercise.

  "Think about walking up a long hill that gets steeper and steeper towards the top. As you walk up the hill you're your body experiences different feelings that tell you your effort is increasing"
  What are these feelings? (hot, sweaty, muscles ache, breath more etc).
  How do you know when it's getting harder?

  It is these changes we will looking at during PE, and these feelings that I would like you to think about when we are doing different activities.

9) Anchor the perceptual range: Provide participants with a clear understanding of the range of sensations that correspond to the PCERT

- By memory: During your PE lessons try to remember an activity that felt physically very easy. (**Distinguish between physical effort and skill based effort, use sensations described previously*). Provide examples of these? E.g., shooting in netball. What number of the scale best describes this? Now, try to recall a particular activity during your PE lessons when the effort was hardest you have ever experienced. E.g., during a running/swimming race or during cross country. What number of the scale best describes these feelings?
- 
- By experience. You are going to do a range of different netball type activities that have been planned to give you the opportunity to experience how easy or how hard exercise feels to you. We might do some activities that feel very easy, and some that feel very hard and some that are in between.

10) Explain the nature and use of the scale

- Whilst you are doing these different activities I will show you the scale and ask you how easy or how hard they feel. Remember, this is how physically hard the activities feel.
- Look at the scale. Each number, from 1 to 10, on the scale represents a different sensation of how easy or how hard exercise feels to you . Number 7

should be reported when the activity feels harder than number 6, but not as hard as number 8. Also, the pictures and words represent different feelings of how hard the exercise feels. For example, You might be grimacing and moving pretty quick if you are exercising here on the scale. Very, very hard is a harder intensity than getting quite hard, which is in turn harder than just feeling a strain. I will show you the scale and ask you say a number during the different activities we do. Use the pictures and the words to decide on a number that best describes your feeling of the exercise at a particular moment.

11) Explain differentiated ratings.

- When you provide a response remember to think about how hard the activity feels in your arms, legs, chest, etc. Use your whole body experience of the activity when saying how it feels.

12) Correctness of perceptual response.

- There are no 'right or wrong' answers. People experience a range of different feelings during exercise, an activity that might be hard for one person might be very hard for another, yet easy for someone else. It is really important that you say how the exercise feels to you, and do not worry about what the other people in the group say.

13) Answer any questions.

14) Anchor the perceptual range through practical experience

"What number on the scale best represents your feelings of effort during the following activities?"

- Static Passing in pairs: chest, bounce, overhead etc..

- Passing and moving in pairs.

A and B stand facing each other at 2 cones 10m apart. A passes to B and B returns. Passes should be to the left/right of B or over B's head. Make B move to catch the ball. 10 passes then change.

- In 6's. Set our 6 cones approx 5m apart in 2 parallel lines. A's start with the ball and pass to B's who return the ball before side stepping onto next cone to receive the next pass and so on. At end of line sprint back. Repeat for 5 time then swap runners and feeders.

- Running activity. Zig zag up gym Across the gym do sidesteps, jog recovery, hops - jog, take offs and land – jog, sprint back down side and repeat.

2 v 1 or 4 v 2 games in small areas. Score by receiving ball and taping on line. No movement with the ball.

**Forestside Middle School: Scale Familiarisation**

**Girls Netball: Session 2: Monday 20th December 1999**

1. Review of the use of HRM. Check straps.

2. Review of PCERT and its use during lessons after Christmas. Ensure girls know when and how to press the red button and how to respond to the scale.

3. Movement about the court. Dodge in and out of each other, backwards, forwards, sidesteps. Try not to contact with anyone. If you do, stand still until the whistle goes, then you become free again.

4. I pairs, one ball between 2. Stand side by side on a line. A bounces ball and B retrieves, pivots and returns. 5x then swap.

5. Jumping and landing without a ball. Take 3 or 4 steps and leap high into the air. Land under control on two feet. Repeat this.

6. Progression from 4. On landing one foot becomes the pivot foot. Change direction for a subsequent run and jump by pivoting.

7. Progression from 5. Introduce a ball. A and B stand opposite each other. A feeds the ball high in any direction to B and then moves into a space (not too far away). B runs to receive. Jumps, land two footed, pivots and returns the ball to A, who has moved into space. Use any type of pass to return the ball. Repeat 5x and then swap roles.

8. 2 V 1 in a small area. Can you get free from your opponent and receive the ball? Can your partner move into a space to receive your next pass? Can you both make 10x consecutive passes without throwing the ball out of the area, dropping the ball, or getting the ball intercepted. If you make a mistake, you go in the middle.

9. 3 V 3 in a slightly bigger area. E.g., a badminton court. Score by receiving the ball on the goal line and tapping it the ground. Think about moving into space to receive the ball and dodging to receiving a pass.

NOTE: After each of the practices and drills ask the girls to provide an effort rating using PCERT that best describes their physical effort during the practise.

Appendix K: Establishing observer reliability during Phase 4

Observer training took place using the physical education lessons video-taped during the protocol familiarisation period and lasted for approximately 25hrs. More specifically, 4 different lessons were observed at the same time by myself (observer 1, O1) and a colleague (observer 2, O2) (who had previous experience of using systematic observation instruments in physical education). During our repeated observations of these lessons, coding conventions and behaviour definitions (as detailed in Philips et al, 1986) were discussed and pupil behaviours throughout each of the lessons was unambiguously agreed. Subsequently, pupil behaviour during an entire lesson was independently coded by the 2 observers using the PETAI and reliability coefficients established. This process was repeated until inter and intra observer agreement reached acceptable rates of >80% (van-der Mars, 1989b). I acknowledged the work of van-der Mars (1989a, 1989b) in considering acceptable percentages of agreement when the allocation of observed time for a particular behaviour was particular low (see also Metzler, 1983) and the effect that this would have upon the calculation of observer agreements (i.e., the lower the time observed, the more difficult it is to obtain >80% agreement), and thus when pupil behaviours in certain categories (for example, equipment management) were particularly low (<10s) I chose to accept lower percentage agreements. The Table below shows the percentages of observer intra and inter agreement for each of the coding categories of pupil behaviour. Subsequently, coding of all the data collection physical education lessons was undertaken by the same observer, (myself), and checks for inter and intra 'observer drift' at 10-14 day intervals took place throughout the coding period.

Inter and intra observer reliability: % of observer agreement.

| | % Observer Agreement | | |
|---|---|---|---|
| Coding category | **Inter** | **Intra (O1)** | **Intra (O2)** |
| **1. Warm up/Review** | 100.0 | 92.8 | 96.4 |
| | | | |
| **2. Allocated SLT** | 100.0 | 94.6 | 93.8 |
| Engaged SLT | 99.9 | 97.8 | 96.7 |
| **N – ESLT** | 99.0 | 94.1 | 88.1 |
| Listening | 93.6 | 88.1 | 94.1 |
| Assisting | 92.3 | 100 | 92.9 |
| Waiting | 61.8 | 80.0 | 80.4 |
| | | | |
| **3. Allocated GPT** | 97.4 | 99.0 | 98.2 |
| Engaged GPT | 99.3 | 96.7 | 95.6 |
| **N – EGPT** | 91.1 | 84.4 | 91.4 |
| Listening | 91.8 | 87.7 | 81.5 |
| Assisting | 100.0 | 100.0 | 100.0 |
| Waiting | 89.1 | 83.2 | 82.1 |
| | | | |
| **4. Beg/end class** | 80.0 | 63.2 | 58.8 |
| **5. Equip Manage** | 41.9 | 72.2 | 78.8 |
| **6. Organisation** | 87.9 | 84.8 | 86.2 |
| **7. Behaviour Man** | 100.0 | 100.0 | 100.0 |
| **8. Other Tasks** | 100.0 | 75.0 | 77.8 |

## Childrens Perceptions of Effort During Physical Education

School..... Group..... Date..... Activity..... Staff.....

| | | | OBS | 1 | | 2 | | 3 | | 4 | | 5 | | 6 | | 7 | | 8 | | 9 | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Name | G | HRM | Bib ID | RPE | HR | RPE | HR | RPE | HR | RPE | HR | RPE | HR | RPE | HR | RPE | HR | RPE | HR | RPE | HR |
| | 1 | A1 | | | | | | | | | | | | | | | | | | | |
| | 1 | A2 | | | | | | | | | | | | | | | | | | | |
| | 1 | A3 | | | | | | | | | | | | | | | | | | | |
| | 1 | A4 | | | | | | | | | | | | | | | | | | | |
| | 2 | A5 | | | | | | | | | | | | | | | | | | | |
| | 2 | A6 | | | | | | | | | | | | | | | | | | | |
| | 2 | A7 | | | | | | | | | | | | | | | | | | | |
| | 2 | A8 | | | | | | | | | | | | | | | | | | | |
| | 3 | A9 | | | | | | | | | | | | | | | | | | | |
| | 3 | A10 | | | | | | | | | | | | | | | | | | | |
| | 3 | A11 | | | | | | | | | | | | | | | | | | | |
| | 3 | A12 | | | | | | | | | | | | | | | | | | | |

**Times and activities during which RPE's reported: Relate to PETAI**

| Time | Activity |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |

| Time | Activity |
|---|---|
| 6 | |
| 7 | |
| 8 | |
| 9 | |
| 10 | |

Appendix M: Overview of lesson content during 'rating' lessons at 'Greensands' and 'Forestside'

| | Greensands | |
|---|---|---|
| **Lesson** | **Boys Football** | **Girls Netball** |
| 1 | Passing, receiving, ball control and keeping possession.<br>Moving forward in the game: 'penetration'. | Ball handling, passing and receiving<br>Losing a defender, quick changes of pace and driving away/accelerating from stationary.<br>Coached games |
| 2 | Ball control and keeping possession<br>Making 'progress' and 'penetration'; dribble or pass?<br>Moving into 'space'. | Ball handling, passing and receiving<br>Starting play: Pupils devise strategies of attack from the centre ball.<br>Coached games |
| 3 | Ball control: the 'first touch'<br>Tackling, intercepting, 'closing down' play (ers) and applying pressure in defence. | Ball handling, passing and receiving<br>One on one defending a pass<br>Strategies of play: attacking from a restart at the back line. Devise own strategies.<br>Coached games |
| 4 | Ball control, 'pass and move'.<br>Creating an 'open' pitch.<br>'Switching' play. Using the width of the pitch and creating space. | Footwork, landing and quick passing<br>Defending, marking and holding 'the space', blocking passes.<br>Defending / marking in the game. |
| 5 | Passing 'angles'. Creating space in game play. Marking your opponent. | Quick hands, quick feet, quick passing.<br>Attacking play using the 'three player weave'<br>Playing 'channels' in the game. |
| 6 | Supporting the player with the ball. Maintaining possession in games. Creating space in games. | Catch and release on the move; 'strong' side, 'weak' side. Footwork on landing.<br>Coached games. |

| | Forestside | |
|---|---|---|
| **Lesson** | **Boys Football** | **Girls Netball** |
| 1 | Ball control: Dribbling, dribble and pass, dribble and shoot drills<br>Full sided game play. | Ball handling, passing (chest pass) and receiving.<br>Running to collect a pass. Passing to a player on the move.<br>'End ball' game |
| 2 | Ball control: dribbling and passing<br>Ball control in restricted. Passing on the ground. The '1 – 2' pass and move. | (supply teacher - indoor lesson)<br>Passing and receiving. 'give and go'<br>'Bench ball' games. |
| 3 | Ball control: dribbling and stopping the ball. Dribble, turn and pass.<br>Full sided game play | Ball control and passing. 'quick passing'. Running and 'fitness' – 'indian file relay'.<br>Full sized game play on full court. |
| 4 | Ball control: dribble and pass on the move - moving to receive a pass in 'space'. Passing and running 'angles'. Passing 3v1 'keep ball' in grids. | (indoor lesson)<br>Ball control, passing and receiving. Chest pass, shoulder pass. 'Blocking' a pass.<br>5v5 games |
| 5 | Ball control, passing and receiving. Quick giving. First touch control and pass.<br>'Two touch' small-sided games. | (indoor lesson)<br>Relay running / racing<br>Passing and receiving<br>Bench ball (two teams) |
| 6 | Ball control, passing and receiving. 3 v 1 keep ball. 'Using the chest to control a high pass.<br>Full-sided game play. | Ball control passing and receiving<br>Shuttle running races<br>Dodging to receive a pass. 'catch the tail'. End ball' games. |

Appendix M: Overview of lesson content during 'regulation' lessons at 'Greensands' and 'Forestside'

| | Greensands | |
|---|---|---|
| **Lesson** | **Boys Football** | **Girls Netball** |
| 1 | **TRADITONAL**<br>Ball control, dribble and pass.<br>'Turning' with the ball<br>Pass and move to spare corner<br>Controlling the 'high' ball.<br>Game play | **TRADITONAL**<br>Shooting practise<br>Passing and receiving. Intercepting passes, (a high ball) marking a player. Drills<br>Making interceptions in game play |
| 2 | **TRADITONAL**<br>Ball control and passing. The sidefoot' pass. The 'long pass'<br>Ball in the air, ball on the ground, follow the pass.<br>Possession game: the 'switch' using the long ball. | **TGFU**<br>Pass and move<br>'Marking and defending' - coached games played on half courts.<br>Devising strategies of attack and defence from the game start at centre ball |
| 3 | **TGfU**<br>How to create passing angles<br>Using the full width of the pitch<br>Games with restricted positioning (wingers wide). Effect of changing pitch 'width'. Coached game | **TRADITIONAL**<br>Dodging an opponent<br>Passing and moving to receive a pass. Footwork.<br>Game play on full court. |
| 4 | **TGfU**<br>'Step over' drill<br>Using the full breadth and depth of the pitch. 'Stretching' the pitch.<br>Attacking through channels<br>Coached game - full pitch. | **TGFU**<br>(indoor – sports hall)<br>Attacking in 'vertical channels'<br>Devise own attacking strategies from a 'sideline' restart.<br>Half court games. Sideline restarts. |

| | Forestside | |
|---|---|---|
| **Lesson** | **Boys Football** | **Girls Netball** |
| 1 | **TGFU**<br>5 v 5 'coached games' across pitch.<br>Attacking: How to move into space, what in 'space'?<br>Defending: Closing down space.<br>'Man to man' marking. | **TRADITONAL**<br>Shuttle running<br>Ball control, passing and receiving.<br>Chest pass in 3's<br>Passing and receiving on the move<br>2 v1 'keep ball'.<br>'End ball' games in court thirds |
| 2 | **TRADITONAL**<br>Ball control and passing - Dribble, turn and pass.<br>3 v 1 'keep ball' in grids<br>Tackling<br>Small-sided games in grids. | **TGFU**<br>Half court 'coached' games in netball thirds.<br>Attacking play: receiving the ball at the correct time and in the correct place. Where to move, why to move there, how to get there. |
| 3 | **TGfU**<br>Playing options in attack: when to shoot, pass or dribble.<br>Restricted playing positions /area small –side game coached play on half pitch. Rotate positions. | **TRADITIONAL**<br>Ball control and passing: 'drawing a defender'.<br>Marking a player and intercepting a pass.<br>Small-sided games. |
| 4 | **TRAD**<br>Ball control and passing.<br>Passing angles 3 v1 on grid lines<br>Ball control: Heading the ball down.<br>Heading for clearances.<br>Dribbling relays | |

Appendix N: History of withdrawal.

Mrs Howe withdraws from research on 23.03.00

Initial meetings with SH and DH were productive and I was made to feel very welcome by DH. However, I sensed a reluctance and nervousness from SH. DH did most of the talking during my preliminary visits, although I accepted that this was as he was the head of the PE department and was my point of contact at the school. I did raise an early concern with DH about SH approach but he ensured me that she 'was just like that sometimes' and took a while to get to know.

After my arrival for the first estimation lesson I grew more concerned about SH. Although we had had two previous familiarisation lessons this was the first data collection lesson during which I was observing, the lesson was video-taped and SH wore a wireless microphone. We had been through these procedures previously but they seemed to bother SH. In fact, they seemed to upset her. She did not speak to me at all. I was made to feel a little uncomfortable. The pupils were very willing and enthusiastic and although they had practised previously they still took a few minutes to put on the HRM and bibs and get over the excitement of someone different in their lessons. This seemed to annoy SH who waited outside of the school gym whilst this was going on. It appeared that this was a disruption to her 'normal' lesson format, even though we had previously gone through the implications of involvement.

After this first lesson I again raised my concerns tactfully with DH who re-assured me that SH did want to be involved. Considering this I decided that my approach would be to 'go with it' and to try and build up and establish a positive relationship with SH. I had put in some ground work for this in our previous meetings and was confident that I could build up a good relationship during the research period.

My arrival at the second lesson was then disappointing. SH was absent from school. It subsequently became apparent that SH was absent from school relatively regularly for sometimes prolonged periods. In subsequent conversations, 'stress' and 'emotional related issues' were provided by the head teacher as reasons for absence. The school had recruited a supply teacher who was a 'trained PE specialist' to cover SH absence.

SH returned for a netball lesson the following week. The weather was very cold for this particular lesson which took place outside. I made a conscious effort to engage SH in casual conversation about the lesson and the pupils, although she still was 'stand off ish'. It is almost as if she is interpreting my presence as a threat. I subtly try to reinforce the fact that I'm there to watch the pupils and their behaviour in the lessons and not to observe SH. In contrast to my time spent with DH. At the start and end of the boys lessons we can chat generally in the changing rooms whilst the boys change. This gives us valuable time to go over issues in the lessons or for next time and establish a good relationship. This is not possible in the girls lessons as clearly no males are permitted in changing rooms. As often SH is rushing to the next lesson and the girls arrived changed this regular valuable contact time is lost. I leave the school feeling a little better that when we last met and still willing to pursue with the relationship.

The fourth rating lesson showed clear signs of the relationship developing. At the start of the lesson we are talking about the poor weather conditions (it is very cold outside, with a layer of groundfrost) and where the lesson will have to take place. She suggests we could go outside if I really insist. I request that she does what she would usually do as this is the reality of PE teaching. The lesson takes place inside in the school gymnasium. The netball lesson is adapted to take place inside. (see lesson diary). During the activities in the gymnasium there is some general chat about the lesson and how "the lesson is going be inactive, probably around number 3" (SH). This demonstrates that SH has an awareness of what we are doing and suggests that perhaps there is an interest. At the end of the lesson the microphone is handed back before SH goes (hides!) in the girls changing rooms.

Prior to the fifth rating lesson I arrange a meeting with SH to discuss the delivery of the second phase of data collection. We meet in the school staff room. SH again is quite receptive. We discuss the implications of the children trying to regulate or produce different levels in the context of netball lessons and how we might plan the lessons to include these levels. The levels are chosen to represent appropriate physical, activity. We also discuss the different types of lesson format, e.g., traditional and TgfU. SH appears to have an understanding of both. Although admits that her knowledge of TGfU approach is weak. Considering this I provide her with some

general literature about this teaching approach and a specific article about teaching netball using TGfU. She accepts with interest and says, "I'll think about the aims of my own lessons and also incorporating your physical activity aims". This meeting is definitely more encouraging than recently. SH was receptive to lessons ideas and principles of planning and delivering the lessons. "I'll have to think very carefully about these lessons, I want to get them right". This suggested to me that SH was willing to try plan the lessons after our discussions. She suggested that she plan the lessons and we both review them together after she has completed the planning. She admits that " I'll have to change my way of thinking" in terms of teaching using TGfU and trying to incorporate physical activity aims.

The fifth lesson again took place in the school gymnasium. SH commented to me at the start of the lesson that "the playground holds water on the surface, when it's wet we can't use it". It had been, and still was, raining very heavily, so neither of the 2 time-tabled girls PE groups could have their lessons outside. The groups doubled up for an indoor lesson. For purposes of data collection the lesson continued as normal, i.e. girls were asked to estimate activity levels. Lesson was spent participating in continuous relays, "it's all part of the game of PE teaching" was SH's response to poor weather and the fact that we were in the gym. Again, we had some conversation during the lesson about the ratings that the girls were giving. Especially, as the activity for some was quite intense, yet rating were relatively low. I left the lesson today feeling that the relationship with SH was really progressing. We were now talking about issues to with effort and activity in PE lessons and had had a productive meeting in relation to physical activity inclusion in lessons.

The final estimation lesson took place outside on the playground, although it was a very clear cold day. We talked about how it can be difficult to get the pupils going on a day like this due to their fingers getting very cold. Catching the ball can be a real problem. This affects the whole lesson. Generally however the lesson goes well. We talk about the following weeks regulation lesson and go over the lesson plan and style of delivery. SH has opted for a traditional approach for the first lesson. SH appears a little nervous now. I attribute this to the fact that she has think the focus of attention has now shifted to the teacher. I assure her this is not the case, and my interest lies still with the behaviour of the pupils in the lessons. In general, as the

lessons had progressed over the weeks it appeared that SH became more used to my presence and felt more comfortable with me being there. She realised that I did represent a threat and was not there to criticise.

The following week SH appeared a little 'moody'. She also did not look particularly well. Although she did deliver the production lesson out on the playground. She remembered to ask pupils to try to produce the different levels but there was little enthusiasm and motivation as we had previously discussed would be important. SH was reluctant to talk to me after the lesson about it went, although we did have a few words about we felt the pupils got on as we walked back to the changing rooms. Her opinion was that the girls new what they were supposed to be doing and tried to do it within the context that SH presented. We had no time to discuss her plan for the following week as she retreated into the girls changing rooms and then rushed off to her next lesson.

I arrived at school for the second production lesson. The girls changed and we waited for the arrival of SH. We waited for about 10 minutes after which point the girls asked if they could go outside and warm up for the lesson. I agreed and we went onto the playground. SH did not arrive. The head teacher arrived and explained that SH was at school but was experiencing some 'emotional and psychological' problems that were causing her difficulties and she wished to withdraw from the research. I was disappointed at this as I felt I had worked hard at establishing a better relationship. SH had become accustomed to procedures in phase 1 but clearly was not now enjoying the experience. It became clear that she was worried about participation and any evaluations of her teaching 'performance' that would subsequently be made.

Appendix O: Procedures for the analysis of self-regulation of physical activity.

From each of the four physical education classes each pupils' heart rate time curve during the 4 'regulation' lessons was downloaded onto a PC using the manufacturers software. ('Polar Advisor, Polar, Oy, Kempele, Finland)

During these 'regulation' lessons pupils were requested to depress a button on the heart rate monitor wristwatch that inserted a numerical indicator on the heart rate time curve. From theses numerical indicators, (supported by lesson observations and video analysis) the precise periods when the pupils were requested to regulate their physical activity levels to match one of the three prescribed PCERT levels could be identified. Using the 'Polar Advisor' software package these periods of lesson activity were individually highlighted. Each pupils' average heart rates for the duration of this period was then calculated. A section from my lesson observations and the analysis output from one lesson ('regulation lesson 4') taught using a 'traditional' approach at Forestside is shown below.

Forestside Middle School – Boys – Regulation Lesson 4 – 24.03.00

Traditional approach

Boys are placed in similar ability groups by the teacher at the start of the lesson. Lesson centred around a series of drills and practises that were designed to give the boys the opportunity to regulate their own effort levels to match prescribed PCERT rating of 2, 4 and 6. DH is a lot more confident in delivering lessons using this approach (although has expressed a desire to shift away from this approach towards a TGFU one). DH has more experience of a traditional approach and therefore has been more successful in planning a range of different activities. However, the boys in the group regularly complain about the boring nature of drills and practises and are continually asking when they can play a game. DH had a game activity planned for the end of this lesson but again ran out of time. This appears to frustrate the boys in the group. Especially if a game has been promised to them at the start of the lesson. Often, the boys do not see the link between the skills they practise and the game situation. They think that they know 'all about skills' and just want to play a game.

**PCERT 2**: a 3v1practise in grids, pass along gridlines to the free player. One player in the centre of the grid tries to intercept the ball.

**PCERT 4**: Passing in grids in groups of 4. 2 players on the outside of the grid and 2 players inside. Ball starts with a player on the outside who passes to his team mate on the inside. As soon as the pass has been made both players on the outside of the grid have to run in a clockwise direction around the rid lines. The players in the grid compete for possession of the ball and then attempt to pass the ball to their team mate who is running around the outside. The practise is then repeated.

**PCERT 6**: Dribble relays in 4's. In the grids, A dribbles to first line, stops the ball and runs back to the group, A and B run to line, B collects ball and dribbles to next line, A and B return to start where A, B and C run to the ball, C collects dribbles to next line and stops ball. A, B and C run back to D all 4 players run to the ball, d collects and dribbles to the next line, stops ball and all 4 players return to the start. A drops off and B, C and D continue with the practise in reverse.

Person: MV
Exercise: Production Lesson 4 (Trad)
Date: 24/03/2000

Starting time: 13:39:52.0
Final Time: 14:21:17.2
Total time: 0:41:25.2

| Num | Intermediate time | Lap Time | HR | max | avg | min | PCERT |
|---|---|---|---|---|---|---|---|
| 1. | 13:48:42.0 | 0:08:50.0 | 116 | 164 | 115 | 90 | |
| **2.** | **13:55:57.0** | **0:07:15.0** | **135** | **174** | **138** | **107** | **2** |
| 3. | 14:01:17.0 | 0:05:20.0 | 113 | 175 | 140 | 86 | |
| **4.** | **14:10:12.0** | **0:08:55.0** | **124** | **155** | **130** | **101** | **4** |
| 5. | 14:15:57.0 | 0:05:45.0 | 82 | 163 | 112 | 75 | |
| **6.** | **14:20:37.0** | **0:04:40.0** | **117** | **171** | **137** | **97** | **6** |

**Person: LW**
Exercise: Production Lesson 4 (Trad)
Date: 24/03/2000

Starting time: 13:37:25.0
Final Time: 14:21:03.5
Total time: 0:43:38.5

| Num | Intermediate time | Lap Time | HR | max | avg | min | PCERT |
|---|---|---|---|---|---|---|---|
| 1. | 13:48:10.0 | 0:10:45.0 | 113 | 180 | 139 | 110 | |
| **2.** | **13:55:40.0** | **0:07:30.0** | **139** | **156** | **133** | **115** | **2** |
| 3. | 14:01:25.0 | 0:05:45.0 | 127 | 159 | 140 | 121 | |
| **4.** | **14:09:55.0** | **0:08:30.0** | **128** | **151** | **137** | **122** | **4** |
| 5. | 14:13:05.0 | 0:03:10.0 | 131 | 145 | 132 | 112 | |
| **6.** | **14:20:10.0** | **0:07:05.0** | **158** | **176** | **142** | **100** | **6** |

The outputs shown above include the time the numerical indicator (num) was depressed and the total amount of time engaged in the particular 'self-regulation' activity. For example, for MV, PCERT 2 occurred at 13.55 and lasted for 7 minutes 15 seconds. During this period starting, maximal, average and minimal heart rates were calculated, with the average taken as the activity level for the prescribed PCERT level. For MV mean heart rate at PCERT 2 was 138 beats per minute.

The mean value of the average heart rates of all of the pupils in the various lesson activities designated PCERT 2, was subsequently calculated to provide an overall value for physical activity at PCERT 2. This process was repeated to determine activity at PCERT 4 and PCERT 6. To permit the overall calculation of mean heart rates at PCERT 2, 4 and 6 (as shown in Table 14) this analysis process was repeated for every pupil in all four of the 'regulation' lessons.

The analysis procedure was completed for the four physical education groups.

Appendix P: Documentary materials collected from case study schools

Greensands Upper School

- School Prospectus 2001
- Governors' Annual Report to Parents 2001
- OFSTED Report 1999
- OFSTED 2000 Special Report : School publication for local community
- 'Student Life' Greensands student magazine
- Physical Education Department Handbook. Including:
    - Curriculum Policy Statement
    - Assessment and Recording Policy
    - Recognition of Achievement Policy
    - Schemes and Units of work

Forestside Middle School

- School Prospectus 2001
- OFSTED Report1999
- Summary of the inspection report: Information for parents
- 'Forestside Weekly' School newsletter
- Physical Education Department Handbook. Including:
    - Curriculum Policy Statement
    - Assessment and Recording Policy
    - Recognition of Achievement Policy
    - Schemes and Units of work

Appendix Q: Letters requesting interviews


SCHOOL ADDRESS

Dear head teacher

**Re: Children's Perceptions of Effort During Physical Education**

As you are aware, De Montfort University, Bedford, is in ongoing collaboration with PE TEACHERS NAMES and a number of year 10 pupils in a research project conducted at your school. The work undertaken to date has gone very well and is now in the final stages. Staff and pupils have been extremely helpful throughout the last 5 months, both during data collection in PE lessons, and in giving up their own time for organisation, interviews, and other associated aspects of the study.

As part of the project I am building a 'picture' of the PE department at your school. The opinions of the school head teacher are of value in this respect. Specifically, the provision of curricular and extra curricular PE and Sport, and physical activity promotion, are of particular interest. I would like to take this opportunity to arrange a meeting with you at school to discuss the research project and related issues. It is anticipated that this will last for approximately 30 minutes and that the conversation will be audio-taped. All responses will remain confidential.

I hope that you will agree to discuss the issues highlighted. I will telephone the school secretary to confirm your acceptance and arrange a suitable time for my visit.

Thank you for your co-operation. Please do not hesitate to contact me on any of the numbers given below if you wish to discuss any aspect of the proposed interview further.

Yours sincerely

Martin Yelling

Martin Yelling
School of PE, Sport and Leisure
De Montfort University
Tel: 01234 793454 / 0780 1023 984 / email myelling@dmu.ac.uk

Appendix R: Head Teacher Interview Agenda

1) **Background information**

- What is your teaching background? I.e.., what subjects taught and at what other schools
- How long have you been a head teacher?
- How long have you been the head teacher at this school?

2) **PE and school sport generally**

- Would you describe to me what you think are the main aims of PE and school sport generally? *Be specific with the **most important** aim/s*
- In your opinion, at this school what is the most valued contribution made to the life of the school by the PE programme?
- Do you think there are any differences between 'PE' and 'School sport' in terms of the experiences offered to the pupil?
- What position and status is awarded to **curricular PE** within your school? *Why is this?*
- What position and status is awarded to **extra curricular PE, including sports** within your school? *Why is this?*

3) **PE within the NC**

- How do you regard the importance of PE within the National Curriculum for schools? I.e. where do you see the subject in terms of importance and subject status? *How would you like the subject to be viewed?*
- Do you see any changes in the status of PE within the new 2000 as compared to the 1995 orders?
- Do you consider any particular aspects of the NCPE as more/less important?
- Would you like to see greater emphasis on any particular areas within the new NCPE orders or PE in school generally? *Themes rather than activity areas? More HRE, less games / vice versa?*

**4) Time for PE**

- In your opinion how, if at all, has the allocation of curricular time to PE changed over recent years? For example, has PE time been increased or decreased directly, or effected by whole timetable change? (e.g., a change in lesson length).
- Is it possible and/or likely that time available for PE at your school will increase or decrease during 2000/2001?
- As you see it, are there any other issues that currently influence, or potentially might influence, the amount of curricular time allocated to PE? *(e.g. literacy and numeracy hour)*

**5) Physical activity guidelines for young people**

- How much physical activity do you think young people should experience on a daily basis?
- Are you aware of existing guidelines for the amount of physical activity young people should experience? *Provide recommendations.*
- In your opinion do you think young people, in general are achieving these recommendations?
- Do you feel that pupils in your school are achieving these recommendations?

**6) Physical activity promotion within PE lessons and the school generally.**

- Do you think that your school in general has a role to play in encouraging its pupils to participate in physical activity?
- Do you think that PE lessons specifically should contribute towards these recommendations?
- How do you think PE might achieve this? What strategies/approaches could your PE staff use?
- Are you aware of any 'whole school initiatives' that have been developed to encourage greater participation in physical activity and an understanding of the benefits of exercise?
- Are you currently, or have you previously involved your school in any of these? Details...

**7) PE provision/other**

- Are you satisfied with standards of PE at this school?

  *Reference to teaching staff, curricular support, extra curricular activities, facilities.*

- What are the latest developments concerning the construction of new tennis courts, pitches and buildings at Greensands? E.g timescale, success with bid.
- Is the provision of these new facilities intended for school and community use?
- Do you think the provision of new sports facilities will influence the participation of more young people in sports and physical activities?
- What is your opinion about the '2 members of staff' of the minibus rule currently being enforced by 'Flatfordshire' LEA?
- Do you think this will influence the provision of extracurricular school PE activities for pupils? *Why?*

Appendix R: PE Teacher Interview Agenda

**1) Introductory Issues**

i) Thanks for study participation

ii) Informed consent

iii) 'small talk' – issues we are going to discuss

**2) National Curriculum**

**Status of PE**

a) How do you view the importance and status of PE within the National Curriculum?

b) What about the position of PE at your school? What status is awarded to PE by the head teacher and other staff members?

c) What gives you these impressions?

**Time for PE**

d) Has the provision of PE curricular time changed recently at your school? What has brought about these changes? *E.g. changes to lesson length on whole school timetable, direct increase/decrease in PE time*

e) Do you find enough time to cover all aspects of the within the allocated time tabled PE provision you receive?

f) Do you forsee any further changes in terms of time available for curricular PE at your school in during 2000/2001? What might influence these changes? *Literacy/numeracy hour.*

**NCPE**

g) Are you currently satisfied with the content and organisation of the existing NCPE? Any thing missing, anything else to include, change the focus or emphasis?

h) Are you familiar with the new NCPE orders for implementation in Sept 2000? How, if at all, are these orders different from the 1995 ones?

i) In your opinion, what are the strengths and weaknesses of the new NCPE?

j) In what ways do you think the forthcoming NCPE 2000 orders will change the way in which you plan/teach PE in your school?

3) **Physical Activity**

**Habitual PA**

a) How much physical activity on a weekly basis do **you** think that young people should participate in? *Personal opinion.*

b) Are you aware of any existing recommendations for young peoples' physical activity participation? *Knowledge of recommendations. Go through if no knowledge.*

c) What do you think of these recommendations? *Too much/not enough*

d) Do you think that young people/pupils in general understand the benefits (physical and psychological health and wellbeing, social etc) of their participation in regular physical activity *in or out of* PE *lessons*?

**School based PA**

e) To what extent do you think that *schools in general* and the PE lessons they provide **should** contribute towards physical activity targets for young people?

f) Is physical activity participation in general promoted at your school? E.g. in 'whole school' initiatives or extra-curricular programmes?

g) How does your school provide opportunities for its pupils to be physically active both in and out of PE lessons?

**PA and the NCPE**

h) Do you think the existing NCPE provides enough opportunity for the promotion of regular physical activity, or do you see it as dominated by alternative aims?

i) Can these multiple aims be easily and/or successfully met within curricular PE time? By alternative aims, I mean the other areas of the NCPE that you are required to teach. E.g., generally, the activity areas and programmes of study, and more specifically, tactical awareness in games playing, skill development in games, improved performance in sports etc.

j) Do you have to compromise in your planning and delivery, what 'give's first? Why? *Personal preferences, specialisms / school facility restraints etc.*

**PA in PE lessons**

k) In terms of the duration and intensity of physical activity within your PE lessons how much time and at what intensity do you think pupils should participate in PE lessons?

l) Do you see any tensions of conflicts with other aims of the lessons? Does it depend on the aims of the lesson?

m) In your planning and delivery of the NCPE do you place any emphasis upon promoting participation in physical activity? *Permeation, discrete HRE units, both? Elaborate*

n) Do you currently employ any **specific teaching strategies** to promote greater physical activity amongst pupils, and/or to regulate their physical activity levels? E.g., warming up, cooling down.

o) What other strategies or approaches within the delivery of PE lessons do you think might help maximise pupils' participation in appropriate physical activity? You may have used these in the past, heard or read about them, be thinking about applying them in the future.

## 4) PCERT

**Background**

a) What do you think of the way in which the PCERT is presented? (numbers, words, pictures)

b) Do you think that teaching young people about the concept of exercise at different intensity levels might help them to understand how to include appropriate amounts of daily physical activity in their lifestyle?

c) Have you used the scale for any other teaching in your school apart from the lessons during which my visits took place?

**Rating**

d) Do you think the pupils understood the scale, was it meaningful to them?

e) How well do you think the pupils were able to use the scale to provide an accurate rating of the intensity of their effort during the PE lessons we did? What gives you these impressions?

f) What do you think influenced the rating number the pupils gave? Feelings of exertion/what others said/motivation/nature of the task?

g) What aspect of the lesson do you think had the greatest impact on pupils rating of effort

h) Any other issues during estimation?

**Regulation**

i) How easy/hard did you find it trying to plan to include the three different effort levels within your lessons? (Trad as compared with TGFU?)

j) To what extent do you think the pupils were able to use their perceptions of effort (i.e. feelings of exertion, sweaty, breathlessness etc) to control how easy or how hard they exercise during these lessons? Do you think they were successful? What gave you these impressions?

k) Were there any specific aspects or activities within the production lessons where you felt that the PCERT was more appropriate to use than during other activities? What activities and why?

l) During these lessons, what other factors, if any, do you think influenced the pupils' ability to regulate their effort levels? *E.g. nature of task you set, constraints of practise or game, what others said, the weather, pupil motivation?*

m) Do you think that there is an appropriate time or activity within lessons to include the use (either estimation or production) of the scale? *E.g. during the warm up, or during a particular phase of the lesson.*

**Regulation: Trad or TGFU?**

n) In your opinion what was the effectiveness of incorporating the scale into a 'traditional approach' to the teaching of games as we did in the production lesson?

o) In your opinion what was the effectiveness of incorporating the scale into a 'TGFU approach' to the teaching of games as we did in the production lesson?

p) Which approach was more appropriate at giving pupils the opportunity to regulate effort levels? Why?

q) Any other issues during production lessons?

**Other teaching and PCERT**

r) Do you think that it is possible for pupils and/or teachers to use the PCERT effectively within invasion games, specifically netball contexts?

s) What other activity areas or aims of the curricular do you think you could use the scale in? E.g. different key stage, GCSE theoretical principles?

t) Are there any specific activity areas within the NCPE that you consider the use of the PCERT to more applicable within than others? Can you specify which ones and why?

u) What type of teaching strategies could you use to incorporate the scale into your PE lessons?

**PCERT and PA**

v) How, if at all, did your participation in this project raise your awareness of the type and quantity of PA to include in PE lessons?

w) In your opinion, to what extent do you think that the pupils' participation in this project improved their awareness of their level of PA in PE and helped them learn how to regulate their exercise intensity?

x) If one of our goals as PE teachers is to increase the amount of appropriate PA in PE lessons, do you think that the PCERT could be successfully integrated into PE lessons generally to help to contribute towards the attainment of appropriate amounts of physical activity for young people?

y) Any ideas for how this could be achieved?

## Appendix R: Pupil Focus groups guide

Opener – What things do you like / dislike about PE at school?
Favourite activity area?

Introductory - How much PA do you get during a typical day?
How much PA do you think you should get a day?
How about trying to get this much .... Show guidelines

Transition - Do you think your PE lessons provide you with much PA?
What activity areas are good / not so good at providing you with PA?
When do you feel like you have really exercised during PE?
What makes these activities good or bad at providing PA?
What other things influence your PA in PE? (mood, what friends are doing etc)

Can you remember the effort perception scale we looked at?
What was contained within it – words – numbers - pictures
Did you like / dislike the format?

**Rating**

- Do you think that you could successfully tell the difference between exercise of different levels, i.e. easier or harder, in your PE lessons on the scale?
- How did you use the scale to help you say how easy or hard you were exercising?
  Words – pictures – numbers Exercise feelings?
- What other things, apart from your feeling of effort/how easy or hard the activity felt to you, influenced the numbers that you gave during your PE lessons? E.g what your friends said, the weather, (cold), your mood that day.
- What type of activities did you give high / low numbers to?

**Regulation**

- Explain what you had to do, and how you did it, when your teacher asked you to exercise at a particular number, i.e. 2, 4, or 6?

- Do you think that you were successful when trying to regulate your own effort level to match the number your teacher said?

- Why do you think this, what did you do to achieve the different numbers? Was the scale a useful thing to refer to when you were trying to exercise at a particular number? How did you try and make '6' different to '2'?

- Were there any other things, apart from your own exercise feelings, that influenced or controlled how easy or how hard you exercised during these lessons, even though your teacher had asked to try to exercise at a particular number? E.g. what your friends were doing, the task itself, how you felt that day?

- During what type of activity was it easier or harder to control how easy or hard you were exercising? E.g during a passing practise or a game – Why was this

**Closure**

- Do you think the PCERT could be used in other activities in PE? Which ones and why?
- Did the PCERT make you think more about your own body and how it feels when you are physically active?
- Do you think that it could be used to help young people understand how much PA they should be getting, and to help them get it?
- What is it about exercise and PA that young people of your age enjoy / dislike?
- What type of things could your PE teacher, or school, do that would encourage you, or other friends you know to get involved in more PA in and out of school

Appendix S: Transcription and analysis

Transcription notation system

| | |
|---|---|
| *?* | Speech unclear |
| # | Interview links/ points of note |
| * | Unfinished sentence/interruption by a new speaker |
| *Pupils* | Emphasised word/s |
| ~~ | overlapping speech |

Example from an Interview Analysis Index Sheet

| **Regulating effort in physical education: Planning, potential and problems** | | | |
|---|---|---|---|
| **A question of approach** | **Role & responsibility** | **Able and interested?** | **Evaluation & effectiveness** |
| GSAA10 45-54<br>It was quite hard, it was quite artificial...<br>GSKA9 45-46<br>I mean skill practices are definitely the easiest... | FSDH12 54-59<br>I think the positional restrictions...<br>GSKA7 39-41<br>I mean the thing with netball... | GSAA12 11-13<br>It's the skill level that's the key thing...<br>GSKA9 26-29<br>A lot of them, they don't have, they don't want to do it... | GSAA12 55-59<br>You could use it when you are doing sit ups...<br>FSDH16 47<br>It made me aware of how little they do sometimes. |

**PE Teacher Interview**

**School: Greensands** **Teacher: AA** **Date: 07.05.00**

**Interview length: 55mins 15sec**

KEY:
- *?* Speech unclear
- # Interview links/ points of note
- * Unfinished sentence/interruption
- *Pupils* Emphasised word/s

The interview was conducted in a small room that served as a modern languages / careers support room situated on the 'south' school of the split site. The room contained a number of desks and tables. Shelving was positioned around the walls containing careers information and books.Large windows created a bright environment within the room. This room was quite and free from disturbance. The interviewer and interviewee sat facing each other on chairs. The interview took place on a school day during the PE teacher's free period. The interviewee has been involved in previous research in addition to the present study. This long-standing collaboration, over a period of 16 months, has enabled a very positive relationship to develop between the researcher and interviewee. The interviewee is the head of PE at a large, popular and thriving upper school.

MY: Firstly, I just wondered what you thought the main aims of PE are?
AA: The four that I always use are enjoyment, learn something, get fitter and get on with other people. Which is just, sort of my quick 4 things that are just always in my head, that can be, they are the four things that I would put there, but it, that's just my way of doing it. So, I always go, 'No 1; enjoy, No2; learn something, as in skills or activity, No3; get fitter, physically develop and No4; the social things, actually working with other people, getting on with other people.
MY: Do you think that other staff in the school, including the head, view PE in a similar way?
AA: Umm, I don't know what they really view, I know that all the rest of the staff, they have the same..*
MY: The PE staff?
AA: The PE staff, we all have the same view, yes. Definitely. Umm, I think other people, if other staff were asked, it would certainly come across on the, err, the positive attitude or the enjoyment aspect. I think they would name that, and then I think would say about the social thing as well. Umm whether they would talk about skills and fitness I don't know. It's a bit too technical for other people. (*laughs*)
MY: What about the way in which PE is seen at REDUS. Is it seen as an important subject, or you know, typical PE, sort of, at the bottom of the pile. Do you often feel you get neglected, or are you somewhere near the top.
AA: Again, it depends on the context of where it's at. When are you going to look at PE? If it's looked at in terms of examination results in PE it won't be seen as important. But if it's looked at..*
MY: It won't be seen as important?
AA: It won't be seen as important. It won't be the first thing that anybody goes looking for in exam results. But if it's seen as, umm, a community thing, certainly,

umm, and as a sort base for, the social thing again, personal and social education, if it's seen as a base for that, it gets a strong support in the school, umm, for what I would say it makes the students feel as if they belong. It gives them that positive attitude to school, so I think that people would see it like that in terms of being very important.
MY: That came across in your OFSTED report. One of their comments was ' pupils enjoy..' and they list a series of lessons, and PE was one of them.
AA: Yes.
MY: So, PE is, I mean, the head emphasised that he thought it was important here. He and other, I think recognise the importance of it.
AA: Yes.
MY: Within the National Curriculum itself, 1995 or 2000 orders, where do you think PE 'sits'?
AA: Errr, across the whole curriculum?
MY: Yes.
AA: Well, I don't think, it obviously doesn't sit high. But it's actually, I think it's actually moved up notch or two since 95. 1995 to 2000 I think there's been a greater importance seen upon it, and that's to with, well it started with Major didn't it, with his umm (*pause*), Sport...err, *
MY: Raising the Game?
AA: Raising the game. I think that was the first thing, and he started to link it with physical education. Raising the game with physical education. So, I think they've now thought, yeah, this is important, but it's seen by the government, I think as important in terms of elitism of the standards of our National team, and what role to schools play in that? I mean, I think that's.., but having said that the curriculum 2000 actually moves away slightly from that, umm, in terms of at key stage 4 they're not making games a compulsory activity at key stage 4. Which I think is a good move. I thinks that's an influence probably coming from within the PE profession on the National Curriculum, rather than politicians having, saying what they want in the National Curriculum, I think there has been input from physical educationalists in curriculum 2000.
MY: Will that change any of the ways in which you, the new curriculum 2000, change any of the ways in which you implement and deliver PE here?
AA: Yes. At key stage 4 it will
MY: In what ways?
AA: Umm, I'll put more emphasis on the second activity. They always did two activities. But they tended, so they would do invasion games as their main activity, they always do sort of a major and a minor as well. So, they do a major, where it is invasion games, but their minor might have been racket sports, racket games.
MY: Right
AA: So I'll have to change, that's going to have to change. That's occupying my thoughts a little bit because, God, you know, your left with three activity areas basically which you can do in school, are games, gymnastics and athletics.
MY: Yes
AA: After you know, outdoor and adventure, dance and swimming, well. You're a little bit lost after that. So, umm, I'm going to have to look at, athletics, is one of the obvious ones for a lot of the groups. And where I might use gymnastics with some other groups, they'll all have a choice. Which I've just done in fact. They've all made a choice of what their main area of activity they want to concentrate on. Whether it's invasion games, racket sports, gymnastic activities, I've even got one

athletic activity group working next year for the first time in, God, six years I think. I've actually got 18 people who want to do athletic activities as their major focus.
MY: As their major option
AA: Umm but for the racket sports and invasion games groups, it's always difficult to find, going to be difficult to find that next, that second activity, and get that second activity up to a second standard. I think that's the problem. I think as far as, umm, end of key stage statements and what have you. In their major activity we can actually work quite well on that. But I think I'm going to have difficulty..*
MY: Is that because of the staffing, or because of you facilities or.
AA: No, just because, no partly because of the time I give that. Umm, but it will be partly to do also with the student attitude towards the second activity, I think as well. Once you start splitting it like that, once you give them a choice for a major activity they are immediately then..*
MY: They view one as more important than the other?
AA: As more important that the other. Yes. That'll be the difficulty really. And, time. In other words, they'll spend more time on their major activity than they will on their minor activity. And therefore, if their going to athletics at key stage 4, 2 years, but they don't have, year 11 doesn't exist as far as summer activities. So they've only got year 10 on athletics.
MY: So you've got to get them..*
AA: So, but the other part of athletics is cross-country. So I'll be doing..*
MY: Some of that.
AA: That's the only other thing I would find to be able to put into that. But it won't suit all groups. You know, all won't want to be doing cross country necessarily.
MY: You've got some err,..*
AA: Some thinking to do.
MY: Thinking to do about your time-tabling.
AA: So whether, I might get away with it in terms of the National Curriculum, I mean I was getting away with it a little bit with some of the other, at key stage 3, I wasn't really sort of *?*. There was a question raised on that.
MY: In your recent OFSTED?
AA: No, It could have been a previous one. I can't remember anyway.
MY: Yes.
AA: But err, yes, and the other major thing is always, and this is talking curriculum, is always this key stage 3 business of middle schools and upper schools.
MY: The link?
AA: It's the link. Definitely the weak link. Umm, between what goes on. It certainly, all upper schools in the area agree with that. I mean everybody, we did actually talk about it on Monday at the first North Beds, the Bedford and District PE Association, which I think the first issue the most important issue identified was key stage 3 assessment. And, umm, RD at Sharnbrook, has this very good idea of actually, because he's mentioned that, when we go to moderation of GCSE or A level. When we did A level moderation at Wootton recently, we had, 10 or 12 PE staff there, we were all together, all moderating, all..*
MY: Thinking along the same.*
AA: Thinking along the same lines. And then RD has this idea that we actually do that with the middle schools, that we start having moderation, not all the time, but occasionally have a moderation day with a number of upper schools and a number of middle schools all getting together, with students.
MY: Finding out what they're doing.

AA: And, actually moderate our marking, or our grading it's not marking, at key stage 3.
MY: Hmm.
AA: Which I think is a good idea, an excellent idea

**#(AA wandered off track a bit in the previous section)**

MY: Is there any other, apart from the flexibility of the dropping of the games at key stage 4, are there any other strengths or weaknesses that you've picked out of the new NCPE orders?
AA: Well, I don't think that's either a strength or weakness the dropping of games, because it doesn't, it hasn't really, it doesn't really change anything there. Umm, I'm just trying to think, what were the other things. That was quite, I was reasonably happy, I thought I was happy, certainly the presentation, even just the presentation of it was far better.
MY: Yes
AA: Umm, it's giving you more information, it's pointing you more in the right direction. I'm still not sure about sort of end of key stage..(*pause*)
MY: Level attainments?
AA: Level.., or being able to work with those. It's like, with GCSE it's easy you give a mark. You give a mark out of 50. In some respects, you know, that's O.K. But, if you've got, you know, a paragraph, or a sentence and you're supposed to go 'oh, right, oh yes',
MY: Right, for this kid..*
AA: Yes, it becomes less objective. I think we like the idea of things being subjective because it's, we don't like to classify too much in terms of PE. But it makes it difficult for us to really get an idea of what the standards are.
MY: Where they (*the pupils*) are, Yes.
AA: Umm, because we don't have the, it's too woolley and therefore nobody has a clear grasp of what the standard is. Whereas in say GCSE, which is still key stage 4, we're still marking at key stage 4 there, we have, you know, oh yeah..*
MY: A clear set of criteria
AA: A clear set of criteria. That may be one way of looking at it. I mean, if it's in my head I think, what I'm doing reports, like I'm doing reports for year 10's now, and I have two sort of big weak groups, and I have my GCSE group. And when I'm thinking about standards, err you know, levels of attainment, high, you know, five grade, five blocks to tick in, I hardly ever go into the top box with these two groups, because I always leave the top group for my GCSE. So I'm working down from them, I think they're at standard that's you know high for that key stage, and the other ones are a bit...*
MY: So you are reluctant to give them higher.
AA: Yes, because I've set the, I mean that's. Because I'm using the GCSE saying this is like nearly working beyond key stage 4.
MY: Right, so they..*
AA: The top one's are working beyond, above and beyond, whereas, you know, the others are just working at that level.
MY: At, or towards that level.
AA: Or at or towards, yes.
MY: Yes.
AA: So, I still think there's a little bit of a problem with the new curriculum in terms of that, the precision.
MY: Just to get your head around the assessment part.

AA: Yes, of the assessment part.
MY: I'm sure that will become clearer. Perhaps they might give some further guidance.
AA: Well I think that this, I'm sure the idea of actually getting staff together to be able to work through this ourselves instead of just wallowing about in our own little world.
MY: Perhaps they (*the schools*) should actually give you time in order to do that.
AA: Well, I'd hope that, there's an associated now, there's a group, we can actually ask the group of heads and say look, can we have one of those non-contact days for all the PE departments to get together. Rather than work in schools. It would be useful because we have to fulfil the National Curriculum, and to do this, that and the other.
MY: They might do that.
AA: One of the things that Mr Croft and I spoke about was the actual time allocation that you get for core PE, GCSE PE here. Umm, since you've been here has there been any changes to that allocation of PE time. For the moment, for core PE it's 3 hours every two weeks.
AA: It's an hour and a half per week basically. Yes, err, we've..*
MY: Has it gone up or down?
AA: It went down, then back up. It's been a long time at 3hrs a fortnight.
MY: Has it?
AA: It used to be 70 minute lessons, so it was what, 70 minutes and you've got them once a week, so it was one hour twenty minutes, and then it went up to umm,
MY: 70 minutes and you got them twice per week?
AA: Twice per fortnight, sorry, twice a fortnight. So it went up from one hour twenty to one hour thirty.
MY: Right
AA: But that was ages ago.
MY So it's been on the three hours for quite a while. Can you forsee any changes in the future for that allocation, within the next couple of years?
AA: No, it's been squeezed.
MY: So, you don't think you'll get any more, but you don't think you'll get any less?
AA: Yes, that's it. It is... (*pause*)
MY: Is it at the minimum you can effectively deliver the curriculum at the moment?
AA: Yes. I'd say it's the minimum, umm, yes. We could like do with the other half an hour.
MY: I said to me Croft, 'Are you going to be changing the PE provision'? and err, he said 'No'. Then we delved a bit deeper and got to the debate about how some subjects have to give, and you, know, he's got all these new demands, citizenship, ICT...*
AA: Oh eye, I know. Yes
MY: And everything else that he's trying to bring in. But he was quite adamant about the importance of PE.
AA: Oh yes, I don't think it will go down. The only way to do it is to extend the day. That's what the big question always is for people, you know, we'll have to extend the school day.
MY: It's an issue here as well at the moment isn't it?
AA: I think it's an issue in all schools. In that's what the push is towards, extend the school day.
MY: To get extra time that way, rather than try and fit in more things into the same time.

AA: Yes, It's bloody... (*sighs*)
MY: One of the focuses of the study was on physical activity in PE, I know you are fairly up 'o fey' with recommendations, but how much do we think, do you think that kids should be getting per day in terms of time?
AA: Per day?
MY: Yes.
AA: Well I mean, ideally you'd like to see them do some form of exercise everyday, if it's just 10 minutes. But I mean it's not practical in any real sense to get kids changed and run them around the field for a couple of laps for 10 minutes.
MY: In and out of school, their whole..**
AA: Oh, in and out of school, their whole day. Umm,...*
MY: What should they be doing..*
AA: Well, I think they should be doing at least you know, twenty minutes to half an hour. If everybody was doing twenty minutes to half an hour of actually getting themselves out of breath, or you know, raising their heart rate to the usual 120 or whatever, for half an hour a day, then twenty minutes half an hour an day. Then we would have, we would have a really healthy population if that happened. Umm, It doesn't have to be every day anyway. I don't thinks it's err, if they were doing that 3 or 4 times a week.
MY: Yes. You know the Health Education Authority brought this out didn't they, a couple of years, 1998.
AA: No, never seen it.
MY: Never seen it? It's an hour a day they recommend in there, an hour a day. (*shows HEA document*). When I first saw it, I thought, 'how on earth are you going to get an hour a day'?
AA: Yes. It's what their definition of an hour is, of activity, sorry.
MY: Yes. It's, I mean you said, activity raising heart rates where you actually get of breath. Theirs is activity, you know, actually getting out and doing something.
AA: Walking to school.
MY: Yes, accumulating that hour over the day. So if it takes 10 minutes to walk to school and ten minutes to walk home, you've already got 20 minutes. Umm, What do you think about that hour? It that realistic in the day?
AA: (*Long pause*) I, (*sighs*), Is it realistic, the word realistic. Is it realistic? It's probably not realistic, no. Not in terms of, if you're going to take into account the students attitude and what have you. If it's going to go that far. You're not, I don't think they would attain that. I think that it (*the amount of physical activity*) can be moved up. But the only way you are going to do that is not going be through choice, free choice of you know, people to exercise for that time.
MY: You don't think they'll do it.
AA: I just don't think they'll do it. No. You'd have to use ways of creating formal, not formal structured, but like, don't put on a bus. We have a bus, a service bus that runs from Flitwick.
MY: Right
AA: It means dropping that service bus.
MY: So they have to walk?
AA: Yes. It means banning parents bringing parents onto the, well, dropping people off on a morning. So you're not allowing them to come into, so that then parents will not want to come and park.
MY: Do you think initiatives like the 'Safe routes to schools', they had a push on that recently didn't they?

AA: Yes, I heard it, yes.
MY: Umm, do you think that might have any effect on encouraging pupils to walk to school? The problem here is the busy roads isn't it? No crossings, although..*
AA: They've just put one in at the top there.
MY: Are they going to try and put one in?
AA: Well yes, I think that's all they're going to do. It's just an island in the middle of the road, isn't it.
MY: Yes.
AA: So you can actually just walk.
MY: There won't be a pelican crossing or anything?
AA: No, no.
MY: That's what they need. A couple of pelican crossing along this road, and on the Flitwick road, (*indicates busy road outside of the school*), but they won' do it because of the traffic to the M1.
AA: I mean, if you want to start moving it (*physical activity levels*) up as a whole. Not I mean, I would say, I mean, the obvious target would be girls. Umm, and I mean, the boys we can talk about, I would say a large percent, we are talking 40% boys, if you looked out here at lunchtimes or breaks are being physically active in terms of kicking a ball around, or throwing a frisbee, or whatever, or playing with a basketball, or whatever. You know, there's a lot happening there. But girls, you know, the only thing that I've seen girls voluntarily want to do is play rounders. They'll ask for a rounders bat and ball to just go out and play that in the summer. You will not see them do anything I the winter. Now, I think that is one area I sometimes think about, especially if we get these new facilities. I think that of we can have a dedicated area where you can sort of go, there's a netball court where the tennis courts are now, or there will be a netball court, that's not for the boys to go and play on.
MY: That's for you (*the girls*).
AA: That's for you if you want a ball, or whatever.
MY: There has just been, the Youth Sport Trust have just started a new initiative on starting to get girls more active in schools. I'll drop some stuff off.
AA: I mean I think that, if we are thinking of the whole population, if you could raise the levels of girls activity, you'd go a long way in terms of improving.
MY: Do you think that, so, if we're talking about the whole day here, you've highlighted the school as being quite an important venue, or avenue for the promotion of physical activity and for getting them (*the pupils*) involved. Umm, to what extent do you think that PE lessons or extra curricular activities should contribute to that time?
AA: Yes, I think it's, for the girls certainly it would be a major amount of time. Certainly in lesson time, that they'll get any activity. Umm.
MY: Would you say, that at the moment, it's the only opportunity that they get, for the majority?
AA: Yes, Yes.
MY: In their PE lessons?
AA: Yes, umm. And I think the activity, yes, think it's a major, for the boys, obviously they still kick the ball around and what have you.. So that, I think the boys are reasonably quite active, you know. I think we have maybe, sort of, even as high as 65% are quite active. But then you are talking about maybe another 35% who probably sit and around and do, don't do very much.

MY: Do you see yourself then, as a PE teacher, as challenged with trying to meet these recommendations in your PE lessons?
AA: Yes.
MY: For example?
AA: Well I'd, the question, the way that you originally put it, I don't feel challenged by these recommendations. I feel challenged in terms of what I want to anyway myself, kind of thing.
MY: But that just happens to fit in..*
AA: But that just happens to fit in with that that, yes. Umm, I find initiatives and recommendations, err, (pause), I haven" much faith in some of the things that actually come down, because I don't think they are actually carried through. They just seem to...*
MY: Bits of paper wafted around, or..*
AA: They just disappear, you know, just. 'Active schools' oh right. (*blows air out*!)
MY: Fizzle out?
AA: Fizzle out. Until, because they are just recommendations I think is one of the things. I mean I would agree that I would want to do all of those things, and you'd like, I know I want to get girls to do more activity. I know I want to do this and that. (*pause)* I would say that the things that have worked, the only way you get things to really work is to make it statutory.
MY: Right
AA: I'm not a great one for that, but I would agree that, I'd say that the National Curriculum...*
MY: mm mm
AA: ..has been a good thing. As far as I can see at Redborne, and the schools around here, in raising standards. I mean that would be, I mean don't have experience of PE in other areas. But I think that has been a good thing because it made people do things.
MY: Yes.
AA: And really in some respects that's, these recommendations are not going to be that much good until there's some sort of statutory..*
MY: Comes into play. A bit like the early Health Education / Health-Related Exercise stuff, where it was recommendations, it wasn't statutory. So people were like...*
AA: Well, you know, we might do a .bit of that.
MY: We don't have to do that, we won't bother.
AA: Yes.
MY: We've got to do this, we'll stick with this. Do you think then that saying that, that the National Curriculum itself emphasises physical activity enough, or would you like to see a statement in there?
AA: Well, there is a strong statement there.
MY: In the new one.
AA: Yes, in the new one, there is a strong statement there. But it isn't, it's how you read it. There's nothing in there that actually states about minutes, hours, activity levels of, err, err, doing the exercise and actually judging pupils health, because we've talked about that before, we shouldn't be testing and measuring, and recording and comparing to National averages. Umm, so there is a quandry there, or a difficulty of umm, like demanding, or asking for certain standards on one hand, but the negative effect on doing that on peoples motivation for exercise. Umm.

MY: Do you find that in addition to that, that there's certain problems, and that you're faced dilemmas or tensions when your trying to meet the goals and your own targets of promoting, you know, getting them active, but also, you know, you've got to think of think the, you, know, the skills level, and trying to improve their motor control, are their certain tensions that exist between one goal and another goal?
AA: There is a tension there, because I mean, umm, that things that was run at Robert Bruce once, when what do you call it, Adrian was there. Where they did ten minutes around the field before each lesson.
MY: Yes.
AA: And, umm, I think Jimmy did some. He says, 'yes, but that was alright, but then we never got anything in the lesson' , you know, he says, 'anyway it took some of them 10 minutes, but it took some of those 15 minutes to run around the field'.
MY: Was that something they implemented at Robert Bruce?
AA: Yes, they did that a while at Robert Bruce, they always had to run around, before every PE lesson they had run around the field.
MY: I was in there, did some data collection and they did that at the beginning of every lesson.
AA: Yes, I think that has a very beneficial effect because it, I mean this is just subjective, but I noticed that in a certain period of time Robert Bruce kids were always bloody fit. You know, they were always fit. So you know, I don't know would happen with some, maybe with the lower end of ability, I don't know effect it had there. But certainly in the kids that I'd seen from Robert Bruce, they were always fit kids.
MY: Do you think that might have detracted though from err, trying to meet some of the other aims of PE?
AA: Yes, obviously, you take 10 or 15 minutes off the lesson and you won't be doing some other things (*#Are you actually taking it off the lesson*). It's always just a skill and fitness business, or it's the social thing or the enjoyment of course there is a problem there as well.
MY: So do you balance it then? How do you prioritise?
AA: Umm,
MY: What goes and what stays? You've got all these different and multiple agenda's that your are trying to meet, what goes and what stays? If you opt for the 10 minutes at the beginning like Robert Bruce did, what needs to be dropped, if you don't do that what do you pick up? How do you balance things?
AA: My lecturer, we had that when I was at college. We still were having discussions then. That was 1971-194. I remember discussing it with him.
MY: Who was that?
AA: A bloke called Jackson, Dave Jackson. I remember precisely. We were off climbing somewhere, and we were sitting in the back of the vehicles and we were talking about this business of having specialist, the first time it was bringing in health-related fitness and stuff like that in there. And his viewpoint was that you should get the exercise through the learning of the skills in the lessons anyway. And he says, look, that exercise.., this is what you're doing now, the exertion levels, you can combine the two in some way. Now everybody says that skill is the anti.., sorry, that fatigues is the antithesis of skill, you know, David Coleman quote or whoever it was. But, I think there is something in that, that we didn't, a framework you would hope that you could build that in. But there's always a conflict of issue that we have gymnastic groups at key stage 4. Now they're not getting a lot of aerobic work, but they might become more flexible and stronger, and with that aspect..*

MY: Yes.
AA: You don't get the aerobic bit, although we still have that one block of the health, of the fitness in each, year 10 and year 11 there's still a block of fitness in each.
MY: A half term block?
AA: No, err, nine lessons.
MY: What about the err, so in a lesson perhaps where the physical activity is you now, is your aim, what do you think is an appropriate amount to include, in terms of intensity and duration. We spoke about 10 minutes....*
AA: I think that 10 minutes is not a bad umm, figure. It's what you think, oh yeah, we can get away with 10 minutes. I still try with the five minutes of whatever activity you're doing of trying to make the warm up, like you said before, that's usually the most strenuous part of the lesson, the warm up. Err, but I still do that now in most lessons, I try and put, ....*
MY: Get them out..*
AA: And, you know do five minutes, maybe it's ten minutes or sometimes five to ten minutes of actually, make sure it's its part of the lesson.
MY: Trying to get them going a bit.
AA: Get them going bit, yes.
MY: Are there any other strategies, apart from the things that we've done, that you might include, that you might do to try and include that activity throughout the lesson as a whole? Or do you do it at the beginning and then disregard it, not in those blatant terms, but you do it the beginning and then disregard it for the next 50 minutes or 40 minutes?
AA: You do more or less disregard it yes. I mean what happens after that is, whether it happens or not. Which at the end, the game is the next probably most strenuous part of the lesson.
MY: Mmm, yes.
AA: And it depends obviously on the motivation of the individual and the standard of the game as to whether that is strenuous?
MY: Do you have any preference in the way that you deliver it (*physical activity*) then, so through umm, a sort of discrete bit at the beginning or throughout the whole lesson? I now at the moment it's a little bit at the beginning, is that how you are going to continue?
AA: I mean it depends, obviously the research, what we've been doing has made you, me and Karen I suppose as well, think about, 'oh yeah, well that..', differently about that. Umm, it doesn't solve the problem. It hasn't solved the problem, it hasn't given any answers, it's just made you think about it. I don't think really, uumm. I think it's easier to do it discretely because you know you've done it then. It's much harder work..*(pause)* *
MY: Trying to think about it all the time?
AA: Trying to think about it all the time?
AA: And, umm, I can see that there's a good idea in terms of what you've, what you seem to have been doing is actually getting the kids to realise. I think that's probably the best thing about the research and probably the one thing I would take away, that we could look at is making them more aware of their exertion levels and building that into you teaching and just making them more aware of that. Is one way of probably making a step forward on that.
MY: But it also, in some ways, raised your awareness.
AA: Oh yes, yes.

MY: Of the fact that you might, that you do, do a little bit at the beginning, and then, disregard it for the rest. But if it's raised your awareness, and if it's raised theirs, then it's some sort of start.
AA: I mean, we've got, to me that would be the, a really good, I mean, I think it's a good strategy of actually building that in some way. But I think it would have to, It's nearly like, all the units of now are, we're being discrete again here, but you could actually target some discrete particular time early on in their school career where you actually go through the old card (P.E.E.R.S) with them, err, so that idea of what level are you at becomes normal practise for them.
MY: It would be interesting for me, you know, to follow up the kids that I looked at in Woodlands when they come here. Then there are sort of 24 of them that have been through a similar thing that would be here.
AA: What you want to know is that in a years time if you came and asked them kids again, whether they are going to say, you know, does it ever go through your head, do you ever think about it when your doing a PE lesson?
MY: That would be interesting to do. With the scale itself, and the way it is presented. The pictures and the words and the numbers. Do you think that was meaningful to the kids, or too simple or childish?
AA: No, no, not so much.
MY: Easy to understand?
AA: This is a useful tool, it's something that they'll remember because it's a separate thing. You know, it's visual, which is important as well. But once you get over the visual, the numbers are important in terms of, it's the quick reference point, isn't it.
MY: Mmm.
AA: Where you can go, yes I though this was, I mean, if I was going to, if I'm thinking about doing what I've just talked about, this would be good.
MY: Reasonably suitable.
AA: Yes, I think..*
MY: Would you change it any way? Because I've been, a couple of people have said to me, well you know, it's up steps and that's not really relative to PE, and it's a boy, and errm. What do you think about having different scales for different populations and things like that? Or this one fairly generic?
AA: I think, umm, I think the step one, I don't see anything wrong with the steps. It's a graph, you know it's a graph, it steps up, yeas and there might be a point.
MY: I was trying to show progression.
AA: It's a lad going up there, fair enough. You might want to try and you know, like you say, do something else. I think that umm, the 10 levels is a lot to remember all the different things, isn't it. I mean, so, in the end what did we use, 2, 6 and..
MY: Yes, 2, 4 and 6.
AA: 2, 4 and 6. Umm.
MY: They were actually really reluctant in the first 6 lessons, when I was just showing them the card each time. There was like a ceiling effect where they were reluctant to be up here at all (*points to 9 and 10).* Do you think that they understood the scale, and could interpret and understand it. It was reasonably meaningful?
AA: Yes. It depends on probably which one. Not all of them probably grasped it, but I think yes, the majority did.
MY: They said that actually. What about in the first 6 lessons, where I asked them to rate, to provide me with a number. Where I was mingling around trying not to get in the way.
AA: Yes.

MY: Do you think they were reasonably accurate at providing a rating of the exercise intensity during that time.
AA: I can't remember, it's not something I can think back to, or really, that I was probably not aware of really.
MY: I couldn't have interfered too much then.
AA: Therefore, I wasn't picking out people and, oh yes, he's a 6. I wasn't going 'oh, they're working at 6, they're working, they look as if they're working at 2'.
MY: Right. When I was asking them those questions, what factors do you think influenced their response? Because I'd given them, do you remember I came in and did a couple of training lessons with them and said 'look we are going approximately to this number now, how are you feeling, what do you feel, blah, blah, blah, and we went through their feelings of effort. And then we did the lessons and I just asked them with no prompts at all. What do you think were the things they thought about before they gave me a number?
AA: (long pause) I don't know, I am just thinking about what I would think about, rather than what they were thinking about. I would immediately go the heart rate and breathing rate. And then there's just this internal feeling, this not specific something you can recall about, it's just you have that internal message there.
MY: They cam up with a similar response. Oh you, you just sort of know.
AA: You just have a feeling.
MY: It was difficult to put words to.
AA: It's a sense, I don't whether it's a kinaesthetic sense, it's a sense of the words described there *(on the scale).* It's bloody hard, you know. It's just that sense you have, a feeling.
MY: Do you there was any other factors that influenced what numbers they gave, apart from how they were feeling?
AA: Umm, (*long pause*), I suppose, there must be, in terms of comparing themselves to other people. There could be that.
MY: That group of boys' in particular, thinking about their relationships to each other in the group.
AA: To each other, yes. I think that would be, that would play a part.
MY: In what way?
AA: I think of umm, how am I doing in the game, or comparing myself, I'm not around as much as...somebody else. You know.
MY: So would that make them give higher or lower numbers?
AA: I think they might give a lower number if they not running around as much as somebody else, or if they are running around more than somebody else, they might say well I'm a ... So, they use the skill as a, instead of using that skill internally, they are using as an external comparison with the others.
MY: The others?
AA: Yes.
MY: Do you think what the other said would have had any influence on what they said?
AA: I'm not sure, did they hear?
MY: We'll, sometimes they were close together you see.
AA: Sometimes they asked each other, you know, 'what did you say', kind of thing.
MY: Yes, yes.
AA: So I think yes, that would be an influence as well.

MY: They sort of claimed that it wasn't a huge influence, but from looking at the data, the range of responses is relatively small. Which sort of says to me, well somewhere along the line they might be listening to other people.
AA: Yes.
MY: You know, one of the factors that might have influenced the number that they gave might have been what their mate gave. Any other, anything else?
AA: I'm just thinking, not of that time, but of err, I don't know whether, I mean it's, in some lessons me being an influence in what I would say.
MY: You?
AA: I don't think I ever did, but I mean I could see it being an influence where the teacher would say like 'oh like, this is going to be hard', you know, or 'I want you to work hard'. Or maybe in the times when we were asking them to do a 2, 4, 6 it actually..*
MY: I think for the second part, yes, you may be right. In the first part you weren't really saying to them..*
AA: Oh, I could be sort of pushing them, 'come on you're not working hard enough', that kind of thing, or 'you are standing around too much'.
MY: Do you think that might have affected their motivation for the activity then, the amount of err, encouragement that you are giving them? And that in turn might have affected the number that they gave.
AA: Yes, yes, that could have.
MY: What about the weather?
AA: Oh , yes, yes, the weather is.
MY: It's an issue for me in that I've been thinking,...*
AA: It's a big, the quality out of what you get out of the kids, yes it can be such a varied thing. Ideally, you want that umm, cold, calm winters day kind of thing. When the kids will work hard, but once that nasty wind comes, or the rain comes then you know, they're, 'phewt' (*blow out*), gone. But if it's the summer, and it gets like, today is good.
MY: Cool.
AA: Cool, but if it gets really hot then 'phewt', the activity levels go down. Or if it's a wet horrible day in the summer then activity levels go down.
MY: You see, these are things that aren't in my view...*
AA: Given enough credence by research?
MY: Given enough, yes. Researchers go away and, you know, study the effects of 'this' on PE, but what they don't comment upon was that it was ...*
AA: That it was such a pissy..*
MY: Pissing down all lesson, or that it was windy. I remember in some of the lessons we did, I was huddled down, freezing cold, with the cover over the camera, trying to get, and the boys' must have bee, you know, freezing. And that must have had some influence on the numbers that they gave.
AA: Yes, yes, that's right it would do. It would influence both. Some would just like cave in and say 'well we're just going to stand here and freeze', where, others might try and run around to keep warm.
MY: If we'd have conducted the same set of lessons in the summer, or perhaps at this time of year, do you think they'd be giving me the same or different numbers?
AA: I think they'd give higher numbers. The numbers would have been higher.
MY: Because they are warmer?

AA: Yes, yes. That could be an influence on, maybe on, instead of breathing and heart rate, also body temperature might be a good way of, actually body temperature is quite a good indicator of exertion isn't it.
MY: What do think was, had the biggest impact on the number they gave me, the rating they gave? Out of all those factors.
AA: I think it's jut that unknown one. That one we can't actually put our finger on. It's the sort of sense you get.
MY: I'd hope it was that one, but I must allow for the fact that there might have been others. When you are looking at in this natural PE environment where I am not controlling for anything, I've got to consider those other variables.
AA: Aye.
MY: In the second block of work that we did, the 'production' lessons I called them, where we had 2, 4 and 6 to do. Ho easy, and you've hinted already, was it easy or hard to plan those lessons?
AA: It was quite hard, it was quite artificial.
MY: Was it? Do you mean artificial or different to what you are used to?
AA: Yes, that, yes, that's a better way of putting it. I'm just trying to think, I don't it was that hard actually, when I think back. Hard and artificial are two different terms, umm.
MY: Challenging?
AA: Yes, it wasn't necessarily that hard, but it did mean manipulating things a little bit. But having said that, that goes back to the point of just me being more aware, of raising my awareness of what was happening. In raising my awareness of what we talked about before, of linking the skill and the physical effort, in terms of marrying those two things together, and the relationship between skill and exercise.
MY: Do you think that when you were engaged in that planning, that you planned the activities to give then sort of scope to exercise at their own level, or that you played the activity to elicit a particular level?
AA: I planned the activity to get them to go to the level of, whatever.
MY: Right, so when they were doing the activity, the hope was that through that activity they could get a 2, 4, or 6.
AA: Yes.
MY: Do you think they were reasonably successful at doing this?
AA: Umm, yes, I do.
MY: In all the lessons? But the last one was right off. Because, umm, it was actually quite a good lesson, the only reason it was a right off was because there was a lot of absences...*
AA: Yes, sure.
MY: A lot forgot to start their watches and like out of those 12 boys I got 1 decent heart rate curve. At that point that was when I decided right, the thing as whole goes, you start off, the project started off with loads of enthusiasm and it picks up and accelerates and people get involved and then it dips.
AA: Yes, yes.
MY: And then after like, you know, end of January, February time it plateaud, and then plummeted.
AA: Yes
MY: At this school and at the others and, that's when I thought right, you know, it's finished now. I couldn't go into any more lessons. We'd strung it out long enough.
AA: Yes.

MY: I'd like to have done another lesson, but it just wasn't practical, you know. It would have been false. For me to have...
AA: I think that, I would say that it was probably the same as far as the staff were concerned as well. In terms of, it probably followed the same thing. But when we got to the production lessons those were the hardest, I was trying to think about doing it. But I didn't feel as if, because in the previous lessons, you were just watching, and I was just being natural and doing what I would normally do. But it was more difficult towards the end, I think to have keep remembering I've got to bring that 2, 4, and 6 in.
MY: Do you think there was any particular influences in those production lessons that had an effect on whether or not the boys were able to work at 2, 4 and 6? Were there things within the lessons that restricted whether they could go to 2, 4, and 6?
AA: Well, I think you can go back again, in a skill practise, that was, I definitely felt that, you know, that was, if you are working on something tactically, you know, you just them and tactically and you are just talking to them, we want you to this and think about that, they would just. There's no way they are going to maintain that level. But once the practise starts, even then, in some of those there was limits as to, well because how far can you run, how far are you going run, how many are in the group? That means I am going to run so much.
MY: For the skill practise, when we tried the lessons that were skill based?
AA: Yes, I mean, err, pass and move to spare corner, which actually can be quite active. About a 4 sometimes you'd get a four, just feeling a strain. I think that's probably why I used that on that one. But it means, but of course you need the skill level to do that. Which is the other thing that I said before, that if they haven't got the skill level and they keep kicking the ball way off away out of the grid, bang goes the activity and the rating as well. But if they are quite skilled it doesn't take very long before you get, you can work at 4 on that one quite quickly.
*(#Link with KA comments on skill)*
MY: or a period of time.
AA: For a period of time, in fact yes, they my feel 'oh yes this is'.
MY: Did you find that, we tried some sort of traditional based, skill based lessons and some understanding lessons, that you would usually teach. Was that (*the PCERT*) suited to one approach more than the other?
AA: Well, the traditional approach you could set the practise, more as you said, to a level and ask them the level. The understanding approach was much more free flowing, therefore it would depend on how hard they are going to work themselves. I think had more choice in that understanding approach. Err, again it would, (pause), even in the understanding approach you, I'm just trying to think what would actually happens. You could actually adapt that, I didn't think about it then, but I'm thinking back to it now, and I'm thinking yes, well in some of those practises it does mean that one person has to run over half way line into the other half, or there's somebody left wide has to run up and down the outside as the winger. The structure of the practise would mean that some of them had to work harder maybe.
MY: Mmm, than others?
AA: Than others, yes.
MY: Were there other constraints or influences in either approach that affected what number they were trying to produce? For example, the boys, when I chatted to them they were like 'well yeah, you know, Mr Adamson, if we were put in a game, and Mr Adamson said 'right I want you to work at 6', and I'm a goal keeper... *
AA: Oh yes, that I was about to say the position, Yes.
MY: I'm scuppered.

AA: Yes, that's I was about to say that, bit I thought it was very similar to what I'd just said before, in that if I put you as a winger and you've got to go up and down the outside, then those two people work a little bit harder that the centre forward who can't go back into his own half because I've restricted him into a certain area.
MY: This was a major problem in netball.
AA: Oh yes, centre.
MY: A major problem, because, to me that's one of the difficulties of including activity within netball as you might be stood there all lesson. Because that's one of the constraints of, you know, that's one of the rules of the game. I found that the rules of the game itself and the very nature of *games* made this (*implementation of PCERT*) quite difficult.
AA: I'd agree with that yes. When you get to racket sports that's..* But allied to that, like I said before, it's the skill level that is key thing. And maybe that, you know, if you get the skills high enough, the exercise level goes up.
MY: So would you focus on the skills first?
AA: It would seem to suggest that. That would seem to be logical wouldn't it?
MY: And use this (*PCERT*) at the same time? Or disregard that and just..*
AA: I think this needs to brought in, and I'd like to see this as a sort of an aid to get them to think about what's happening to their bodies.
MY: Right.
AA: It's really actually, just teaching them the same way talking now, trying to make them aware, look you know, you don't want to be too tired when you learn the skills, but I also want you to be active, but
I also want you to learn the skills as well. (*see previous 'fatigue' comment*)
MY: If you don't think you should be too tired when you learn the skills, is their like..*
AA: A number for the, I think actually 4 is the highest you are going to get to learning skills.
MY: Is there an appropriate time during the lesson, um, say during a games lesson, is there an appropriate section or aspects of the lesson where you might include that (PCERT) and an aspect of the lesson where you think , well that's really not going to be of much use to me there?
*Long Pause (8s)*
MY: Might it be of more use in the warm up than it will in the games?
AA: An appropriate time?
MY: Yes. An appropriate time in the lesson.
AA: I think the warm up is an appropriate time, (*sighs*). But I still think that you could, it doesn't mean to say that it would stay there all the time. Yes, I wouldn't just use it there all the time. You could still just keep dropping it in. I wouldn't just say, 'look right, this is the only time I'm going to mention it'.
MY: Would that be a better approach, to keep dropping it in?
AA: I think it would be, yes. But then again, I think it would be a good approach to mention it every warm up, kind of thing.
MY: Right, yes. So are there perhaps other activities areas that that's (*The PCERT*) more suited to than games? Would you say it would have been useful in you cross country lessons for example?
AA: Oh yes, yes, very, very, it would be a great resource. Like today, in the athletics this morning the kids had to go and do an 800m. And I'm just telling them 'right', to some of them I'm just saying 'just jog around for two laps and you'll get a point', to get a point you had to get 4 minutes 40, to get one point, so I said, 'look, if you jog

around for two laps and get 4:40. I'm just saying, you know, if there had been some kind of skill, because to some of them I said, 'look, don't go off too quickly' and you know, phew (*blows out, indicating they've gone off too quickly*). If I'd been able to say, 'right, I just want you set off, go off at 3 or 2, nice and easy, and maybe you can move up to 4 or 6 when you get towards'.
MY: With a little bit to go.
AA: With a little bit to go.
MY: So, you could use the scale in cross country or in some of your athletics, but perhaps not in your netball, or gym, could you use it in Health-Related Exercise?
AA: Oh yes, yes.
MY: In that unit?
AA: OH yes, because you could use it when you are doing sit ups, press ups. I think it's umm, and you could use it in terms of intensity. I mean when you are teaching them about principles of training or whatever you can refer to intensity, and that would be a great thing obviously for intensity, because it's all about it. I think the idea of 100%, and I used to often talk about, and I'm not sure the kids know really, I'm talking about 70%, 80% or 100% effort and it's the same here. This (*The PCERT*) is a percentage scale as well.
MY: Was there any issues that we haven't, you know in those production lessons, those second ones, that we haven't spoken about that you felt, while you teaching, you felt, this not working, or this is working now?
AA: The only thing, I mean, it's just me not remembering to bring it in, not having enough practise with it. I think it's a good idea, I think really, err, there is something here, I think as a piece of research there is something important here to use as teachers. I think this is a good idea. I'm thinking, if we want to try and use this, this could be developed into, not a package, but it could be developed in a certain way. If we were going to introduce this to another school, I could see it being introduced as a teaching aid for teachers. But I would do it this way you know. Get people working...(*pause*)*
MY: Perhaps do it differently? *(# teacher practise/scale training sessions and practise lessons?)*
AA: Do it differently, hmm.
MY: Do you think it have been of advice for me to have gone through some aspects of it with you in greater detail before those production lessons?
AA: Yes, probably, we should probably have sat down with the lesson plan and said, 'right, I wanted you to try,' even if you had been more directive on us, err.
MY: I recall asking whether asking you wanted me to write the lesson plans or if you wanted to write them yourself. And then review them together. I did this with each of the teachers and each of them said, oh I'll write them myself'. I think might have been because it's quicker.
AA: Yes, yes.
MY: It's quicker for me to it myself than it is for me to arrange to meet you and..
AA: Yes, but I think we should have done it together more. I think it would have been better if we'd have done it together. Because I think the lesson would have been more productive. (*#Issue here in that although we met to discuss the planning of the lessons, the teacher planned the lesson themselves and these plans were subsequently reviewed together. It became difficult to meet the teachers to review the lessons – time, although I kept calling and arranging meetings these were often cancelled, forgotten or re-scheduled. With lessons requiring regular weekly planning the lesson was sometimes not reviewed until minutes before delivery)*

MY: Yes, overall, it certainly seems to have raised your awareness of activity levels.
AA: Oh yes.
MY: Do you think it's raised...*
AA: Oh yes, and like I say, I think it's a great idea as a tool. As a tool I think it's a good idea. And I think it's raised the issue that we should be actually talking to students more about activity levels, because we don't talk to them enough about it. That will raise their awareness and maybe that will start to have spin offs. But not only just activity levels and putting in relation to skill, but it becomes a whole...yes.
MY: A whole package?
AA: A whole package, that's just something extra like a warm up or a cool down, but it's something else you talk about in lessons. Like erm, planning, performing and evaluating. You know, it becomes a bit of everything.
MY: A central part.
AA: A central part.
MY: Is there anything else that you wanted to discuss or raise about anything we've done? Anything that you felt was good, bad indifferent. Would you have changed anything, had me do anything differently?
AA: I think the kids like the technology.
MY: Wearing the watches?
AA: Yes, yes, and the camera.
MY: They got bored with it at the end.
AA: Yes, they probably got bored, yes. Umm.
MY: Yes, the camera. I tried to involve some of them indirectly in doing a little bit.
AA: Yes, they liked it.
MY: Rather than those with no kit not doing a thing, I sort of said, well if you want to operate this (*the camera)* you can. But I hope that didn't make them not bring their kit next time.
AA: Not want to do it next week, no, I'd like rather do the camera work! (*laughs*)

Interview ended

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